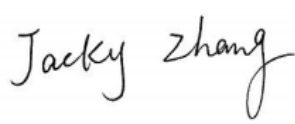






TEST REPORT

Report No.:	E201605048784-1	Application No.:	E201605048784
Applicant:	Comba Telecom Ltd.		
Applicant Address:	611 East Wing, No. 8 Science Park West Avenue, Hong Kong Science Park, Tai Po, Hong Kong		
Sample Description:	700/800MHz Public Safety Bi-directional Amplifier		
Model:	RX-7W22		
Test Location:	EMC Laboratory of Guangzhou GRG Metrology and Test Co., Ltd.		
Test Specification:	FCC PART 2, FCC PART 90		
Test Date:	2016-05-06 to 2016-05-15		
Issue Date:	2016-06-01		
Test Result:	<i>Pass.</i>		
Prepared By:	Reviewed By:	Approved By:	
Jacky zhang/ Test Engineer	Lyn xiao/ Technical Assistance	Yong Dai / Manager	
			
Date: 2016-06-01	Date: 2016-06-01	Date: 2016-06-01	
Other Aspects:			
Abbreviations: <i>ok / P = passed; fail / F = failed; n.a. / N = not applicable</i>			
The test result in this test report refers exclusively to the presented test sample. This report shall not be reproduced except in full, without the written approval of GRGT.			

DIRECTIONS OF TEST

1. This station carries out test task according to the national regulation of verifications which can be traced to National Primary Standards and BIPM.
2. The test report merely corresponds to the test sample. It is not permitted to copy extracts of these test result without the written permission of the test laboratory.
3. If there is any objection concerning the test, the client should inform the laboratory within 15 days from the date of receiving the test report.

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APPENDIX A. PHOTOGRAPH OF THE TEST CONNECTION DIAGRAM..... 159

1 General description of EUT

1.1 Client information

Name: Comba Telecom Ltd.
Address: 611 East Wing, No. 8 Science Park West Avenue, Hong Kong Science Park, Tai Po, Hong Kong

1.2 Manufacturer and Factory

Manufacture Name: Comba Telecom system (China) Ltd.
Address: No. 10 Shenzhou Road, Guangzhou Science City
Factory: Comba Telecom system (China) Ltd.
Address: No. 10 Shenzhou Road, Guangzhou Science City

1.3 Basic description of EUT

Product Name: 700/800MHz Public Safety Bi-directional Amplifier
Product Model: RX-7W22
Trade Name: Comba
Power Supply: AC 110~240V, 50/60Hz
Power cord: AC power cord (4m)
Type of Modulation: C4FM, Tetra and Analog FM(10kHz/1kHz)
Frequency Band: 700MHz Band:
Downlink: 799MHz ~805MHz, Uplink: 769MHz ~ 775MHz.
800MHz Band:
Downlink: 851MHz ~869MHz, Uplink: 806MHz ~ 824MHz.
Normal Power Output: Downlink: 33dBm;
Uplink: 25dBm;
Normal System Gain: Downlink: 90dB;
Uplink: 90dB;
Operating Temperature: -33°C to +55°C
Operating Humidity: 5% to 95%
Antenna Type: N/A

1.4 Standards applicable for testing

The standard used FCC part 2, part 90;

1.5 Signal control process

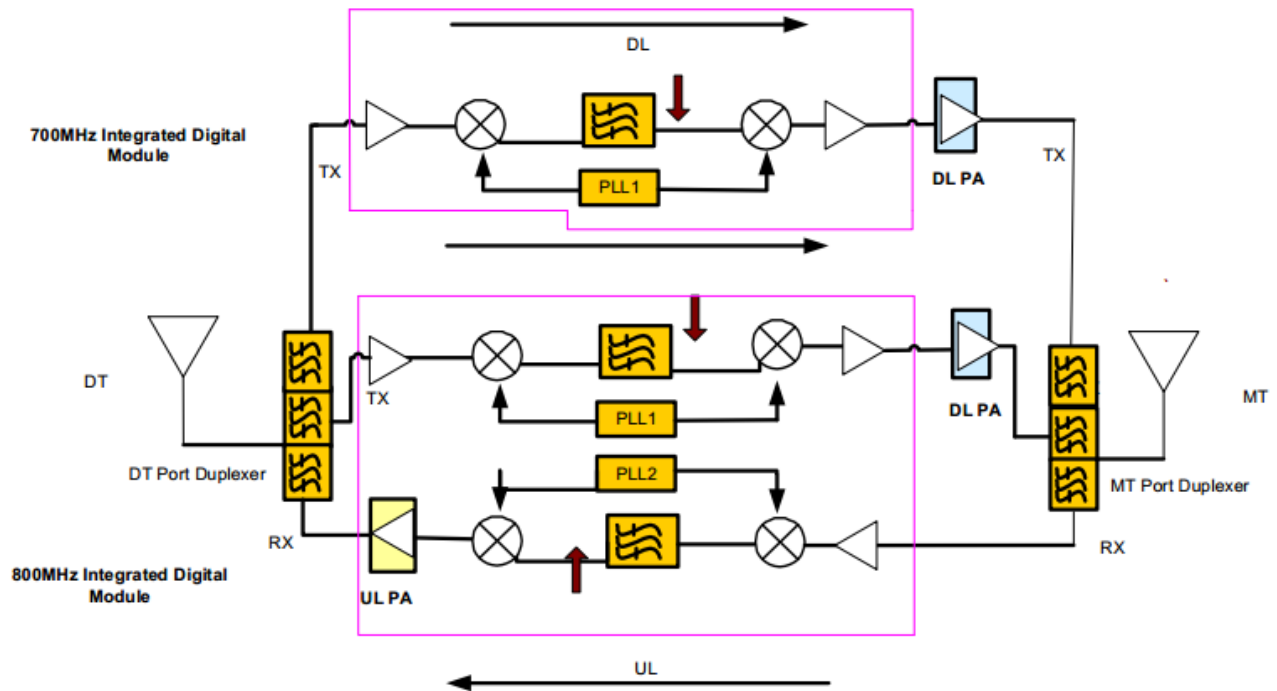


Figure 1: PS BDA Functional Block Diagram

In the downlink, the BTS signals are received by donor antenna of the repeater. After the duplexer, the signals are sent to the LNA module for pre-amplification and digital RF integrated module for digital filtering and frequency conversion. Then the DL signals will be sent to downlink PA to amplify power and filter via duplexer. After amplification, the signals are transmitted at the MT port to the service antenna.

In the uplink, the mobile signals are received by the service antenna. After the MT port integrated duplexer, the signals are sent to the LNA, integrated module for digital filtering, then to PA for power amplification and to duplexer. After that, the uplink signals are sent to the donor antenna for transmission back to the BTS.

2 Test result summary

Test Item	Test Requirement	Test Method	Result
Radiated output power	Part 90.219(e)(1)	FCC part 2. 1046& KDB 935210 D05 Indus Booster Basic Meas v01r01 EIA/TIA 603- D/2.2.17	PASS
Occupied bandwidth	Part 90.219(a)	FCC part 2. 1049& KDB 935210 D05 Indus Booster Basic Meas v01r01	PASS
Emission mask	Part 90.210(b), Part 90.210(c), Part 90.210(g). Part 90.210(h)	FCC part 2. 1047& FCC part 2. 1051 & KDB 935210 D05 Indus Booster Basic Meas v01r01	PASS
Intermodulation product	Part 90.210(b)	KDB 935210 D05 Indus Booster Basic Meas v01r01 EIA/TIA 603- D/2.2.16	PASS
Frequency stability	part 90.213 & part 90.539	KDB 935210 D05 Indus Booster Basic Meas v01r01 EIA/TIA 603- D/2.2.2	PASS
Noise figure	Part 90.219(e)(2)	KDB 935210 D05 Indus Booster Basic Meas v01r01	PASS
Radiated spurious emissions	Part 90.219(e)(3)	KDB 935210 D05 Indus Booster Basic Meas v01r01 EIA/TIA 603- D/2.2.12	PASS
Conducted spurious emissions	Part 90.219(e)(3)	KDB 935210 D05 Indus Booster Basic Meas v01r01 EIA/TIA 603- D/2.2.13	PASS

Notes:

1. This is a signal booster equipment;
2. The equipment has audio low pass filter;
3. This device supports bandwidths: 12.5kHz and 25 kHz;
4. The modulation methods used in this test are C4FM, Tetra 和 Analog FM

3 Laboratory and accreditations

3.1 Test location

The tests and measurements refer to this report were performed by Guangzhou GRG Metrology and Test Co., Ltd.

Add.: 163 Pingyun Rd, West of Huangpu Ave, Guangzhou, 510656, P. R. China

Telephone: +86-20-38699959, 38699960, 38699961

Fax : +86-20-38695185

3.2 Accreditations

Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025.

USA	FCC Listed Lab No. 688188
Canada	Registration No.:8355A-1

4 Measurements uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement		Frequency	Uncertainty
Radiated Emission	Horizontal	30MHz~1000MHz	4.2dB
	Horizontal	1GHz~6GHz	4.2dB
	Vertical	30MHz~1000MHz	4.4dB
	Vertical	1GHz~6GHz	4.4dB
Conducted Emission		9kHz~150kHz	2.6dB
		150kHz~30MHz	2.4dB

This uncertainty represents an expanded uncertainty factor of $k=2$.

5 Equipments used during test

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due(yy-mm-dd)	Calibration Interval
Signal Generator	Agilent	E4432B	MY50142497	2015-09-21	2016-09-20
Signal Generator	Agilent	E4438C	MY45090084	2016-03-04	2017-03-03
Spectrum analyzer	R&S	FSV3	102004	2015-07-16	2016-07-15
Spectrum analyzer	Agilent	N9020A	MY50510389	2015-09-05	2016-09-04
SNS Series Noise Source	Agilent	N4000A	MY44421910	2015-11-25	2016-11-24
NFA Series Noise Figure Analyzer	Agilent	N8973A	MY45271261	2016-04-23	2017-04-22
Frequency meter	Sweden	PM6685R	SM826664	2015-11-08	2016-11-07
Voltage parameters tester	China weibo	PF1211	0092502	2015-10-18	2016-10-18
Power splitter	Comba	PS-R4-ON50M	20150831	----	----
Voltage regulator	China tianzheng	TDGC2J-3	1070	2016-02-10	2017-02-09
High low temperature test box	China BAOTY	YP-HP20-01	112109	2015-10-23	2016-10-22
Radiated Spurious Emission					
Bi-Log Antenna	ETS-LINDGR EN	3142C	00075971	2016-03-14	2017-03-13
Horn antenna	ETS.LINDGR EN	3117	00075824	2015-07-03	2016-07-02
EMI Receiver	Rohde & Schwarz	ESU 40	100106	2016-02-17	2017-02-16
Semi anechoic chamber	ETS	966(RFD-F/A-100)	3730	2016-01-02	2017-01-01
Spectrum analyzer	HP	8563E	3804A08426	2015-09-28	2016-09-27

6 Radio technical requirement specification

6.1 Radiated output power

Test Date (yy-mm-dd): 2016-05-06 to 2016-05-15

Test environment: Normal

Ambient Temp 24.5°C~26.3°C, Humid 49%~65%, Atmospheric Pressure 101kpa

Power supply: AC 120V 50/60Hz

Test Method: FCC part 2. 1046& KDB 935210 D05 Indus Booster Basic Meas v01r01

Test Requirement: FCC part 90.219(e)(1)

6.1.1 Limit

The output power capability of a signal booster must be designed for deployments providing a radiated power not exceeding 5 Watts ERP for each retransmitted channel according to tables 1.

Table 1 Maximum output power limits

Assigned frequency range(MHz)	Maximum output power(ERP)	
	W	dBm
Above 150	5	37.00

NOTE:

1. RF channels to be tested for single-carrier: Low frequency, Mid frequency and High frequency;
2. Modulation types are C4FM, Tetra and Analog FM(10kHz/1kHz);
3. The nominal output power for Manufacturer declaration: 33dBm ± 1dB

6.1.2 Test configuration

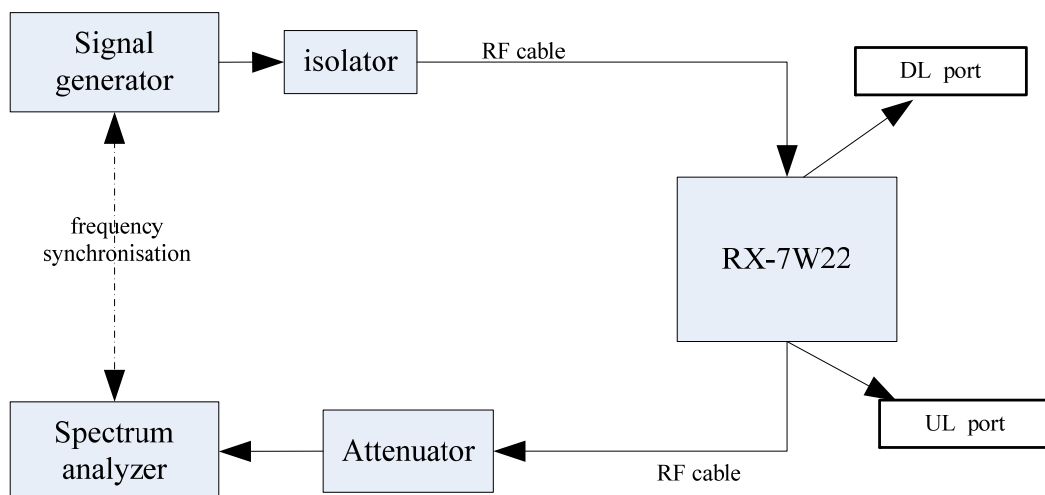


Figure 1: Maximum output power arrangement for Downlink

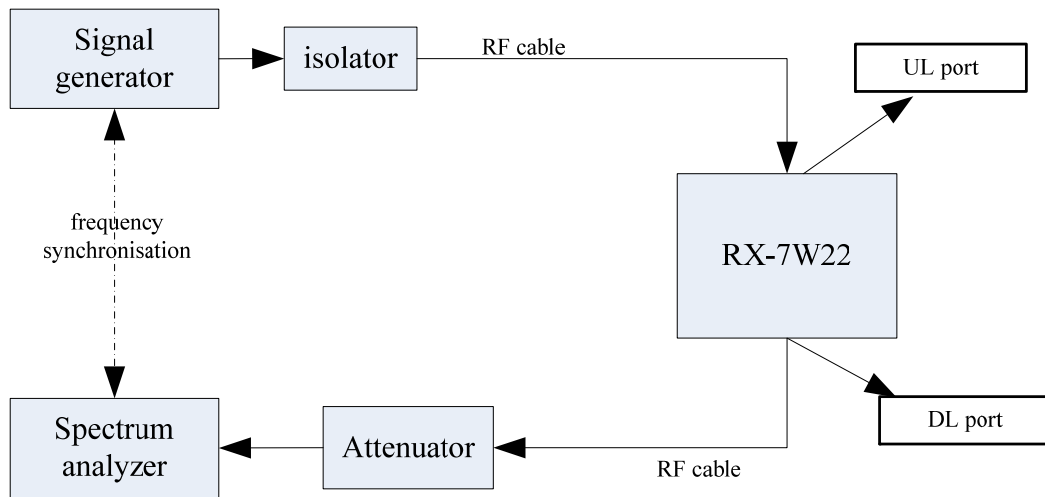


Figure 2: Maximum output power arrangement for Uplink

6.1.3 Test procedures

- (1) Connect the equipment as illustrated Figure 1 and Figure 2, when the output power is over the maximum value of the Spectrum Analyzer, add the attenuator to avoid destroying;
 - (2) The signal generator should initially be configured to produce either of the required test signals (i.e., broadband or narrowband);
 - (3) Set the signal generator frequency to the center frequency of the EUT operating band;
 - (4) While monitoring the output power of the EUT, measured using the methods of in KDB Publication 971168 [R8], increase the input level until a 1 dB increase in the input signal power no longer causes a 1 dB increase in the output signal power;
 - (5) Record this level as the ALC threshold level;
 - (6) Repeat the procedure with the remaining test signal;
 - (7) Repeat RF channels to be tested for single-carrier: Low frequency and High frequency;
- Note: The equipment has ALC function.

6.1.4 Test Results

6.1.4.1 700MHz Band

6.1.4.1.1 Modulation signal: C4FM

Resolution Bandwidth:	100 Hz
Video Bandwidth:	300 Hz
Detector mode:	Peak
Trace mode:	Average
Symbol Rate:	4.8ksps
Configuration:	Single Band
Operating frequency range:	Downlink: 769MHz~775MHz Uplink:799MHz~805MHz

Carrier frequency (MHz)	Input power (dBm)	Output power ^{1*} (dBm)	Limit(dBm)	Margin ^{2*} (dB)	Result
Downlink transmit mode					
769.00625	-56.50	33.38	37.00	-3.62	pass
772.00625	-57.40	33.65	37.00	-3.35	pass
774.99375	-57.00	33.09	37.00	-3.91	pass
Uplink transmit mode					
799.00625	-64.30	25.55	37.00	-11.45	pass
802.00625	-64.00	24.91	37.00	-12.09	pass
804.99375	-63.00	24.29	37.00	-12.71	pass
Note: 1*--Output power means to Maximum value from output part (with ALC). 2*--Margin= Maximum ERP- specification limit.					

6.1.4.1.2 Modulation signal: Tetra

Resolution Bandwidth: 300 Hz
 Video Bandwidth: 1 kHz
 Detector mode: Peak
 Trace mode: Average
 Symbol Rate: 18ksps
 Configuration: Single Band
 Operating frequency range: Downlink: 769MHz~775MHz
 Uplink:799MHz~805MHz

Carrier frequency (MHz)	Input power (dBm)	Output power ^{1*} (dBm)	Limit(dBm)	Margin ^{2*} (dB)	Result
Downlink transmit mode					
769.0125	-56.70	33.54	37.00	-3.46	pass
772.0125	-57.80	33.26	37.00	-3.74	pass
774.9875	-56.80	33.11	37.00	-3.89	pass
Uplink transmit mode					
799.0125	-64.00	24.85	37.00	-12.15	pass
802.0125	-63.30	25.26	37.00	-11.74	pass
804.9875	-63.50	24.37	37.00	-12.63	pass
Note: 1*--Output power means to Maximum value from output part (with ALC).. 2*--Margin= Maximum ERP- specification limit.					

6.1.4.1.3 Modulation signal: Analog FM(10kHz/1kHz)

Resolution Bandwidth: 300 Hz
 Video Bandwidth: 1 kHz
 Detector mode: Peak
 Trace mode: Average
 Symbol Rate: 1ksps
 Frequency Dev: 10kHz
 Configuration: Single Band
 Operating frequency range: Downlink: 769MHz~775MHz
 Uplink:799MHz~805MHz

Carrier frequency (MHz)	Input power (dBm)	Output power ^{1*} (dBm)	Limit(dBm)	Margin ^{2*} (dB)	Result
Downlink transmit mode					
769.0125	-56.60	33.39	37.00	-3.61	pass
772.0125	-57.50	33.27	37.00	-3.73	pass
774.9875	-57.10	32.87	37.00	-4.13	pass
Uplink transmit mode					
799.0125	-65.5	25.78	37.00	-11.22	pass
802.0125	-64.5	25.78	37.00	-11.22	pass
804.9875	-64.5	25.11	37.00	-11.89	pass
Note: 1*--Output power means to Maximum value from output part (with ALC).. 2*--Margin= Maximum ERP- specification limit.					

6.1.4.2 800MHz Band

6.1.4.1.4 Modulation signal: C4FM

Resolution Bandwidth: 100 Hz
 Video Bandwidth: 300 Hz
 Detector used: Average
 Configuration: Single Band
 Symbol Rate: 4.8ksps
 Operating frequency range: Downlink: 851MHz~869MHz
 Uplink:806MHz~824MHz

Carrier frequency (MHz)	Input power (dBm)	Output power ^{1*} (dBm)	Limit(dBm)	Margin ^{2*} (dB)	Result
Downlink transmit mode					
851.00625	-56.2	33.22	37.00	-3.78	pass
860.00625	-57.9	33.63	37.00	-3.37	pass
868.99375	-57.4	33.31	37.00	-3.69	pass
Uplink transmit mode					
806.00625	-64.30	24.87	37.00	-12.13	pass
815.00625	-65.70	25.12	37.00	-11.88	pass
823.99375	-66.30	24.90	37.00	-12.10	pass
Note: 1*--Output power means to Maximum value from output part (with ALC). 2*--Margin= Maximum ERP- specification limit.					

6.1.4.1.5 Modulation signal: Tetra

Resolution Bandwidth: 300 Hz
 Video Bandwidth: 1 kHz
 Detector used: Average
 Configuration: Single Band
 Symbol Rate: 18ksps
 Operating frequency range: Downlink: 851MHz~869MHz
 Uplink:806MHz~824MHz

Carrier frequency (MHz)	Input power (dBm)	Output power ^{1*} (dBm)	Limit(dBm)	Margin ^{2*} (dB)	Result
Downlink transmit mode					
851.0125	-56.30	33.00	37.00	-4.00	pass

860.0125	-57.60	33.60	37.00	-3.40	pass
868.9875	-57.20	33.31	37.00	-3.69	pass
Uplink transmit mode					
806.0125	-63.80	25.21	37.00	-11.79	pass
815.0125	-65.30	25.52	37.00	-11.48	pass
823.9875	-66.00	25.29	37.00	-11.71	pass
Note: 1*--Output power means to Maximum value from output part (with ALC).. 2*--Margin= Maximum ERP- specification limit.					

6.1.4.1.6 Modulation signal: Analog FM(10kHz/1kHz)

Resolution Bandwidth: 300 Hz
 Video Bandwidth: 1 kHz
 Detector used: Average
 Configuration: Single Band
 Symbol Rate: 1ksps
 Frequency Dev: 10kHz
 Operating frequency range: Downlink: 851MHz~869MHz
 Uplink:806MHz~824MHz

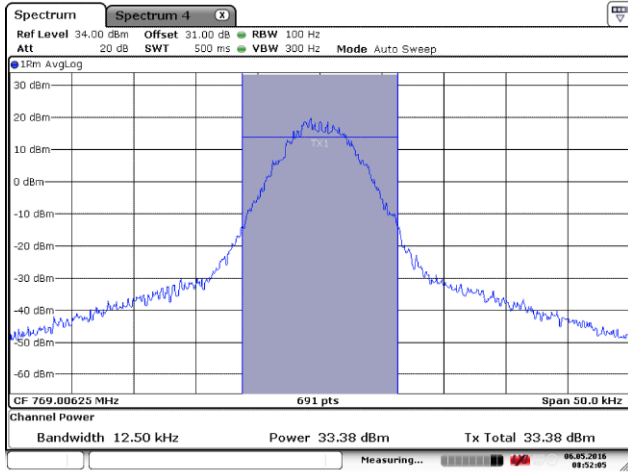
Carrier frequency (MHz)	Input power (dBm)	Output power ^{1*} (dBm)	Limit(dBm)	Margin ^{2*} (dB)	Result
Downlink transmit mode					
851.0125	-56.20	32.96	37.00	-4.04	pass
860.0125	-57.70	33.36	37.00	-3.64	pass
868.9875	-57.20	33.15	37.00	-3.85	pass
Uplink transmit mode					
806.0125	-64.00	25.00	37.00	-12.00	pass
815.0125	-65.60	25.25	37.00	-11.75	pass
823.9875	-66.30	25.04	37.00	-11.96	pass
Note: 1*--Output power means to Maximum value from output part (with ALC).. 2*--Margin= Maximum ERP- specification limit.					

6.1.5 Test screenshot

6.1.5.1 700MHz Band

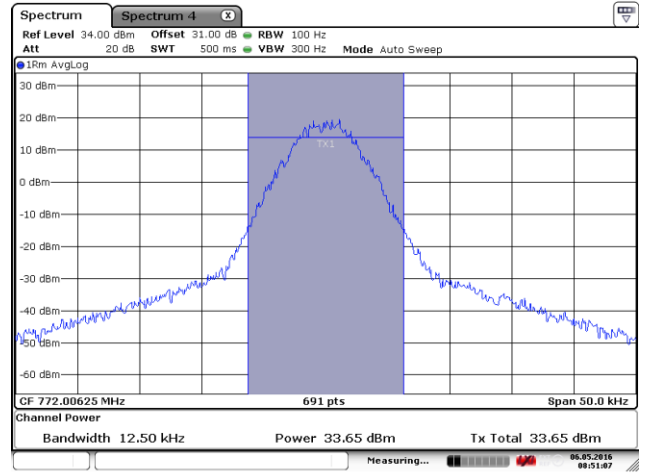
6.1.5.1.1 Modulation signal: C4FM

(1) Downlink



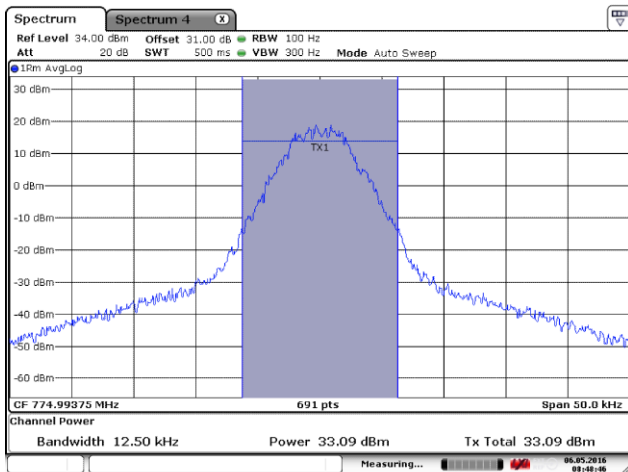
Date: 6.MAY.2016 08:52:04

Low Frequency: 769.00625MHz



Date: 6.MAY.2016 08:51:07

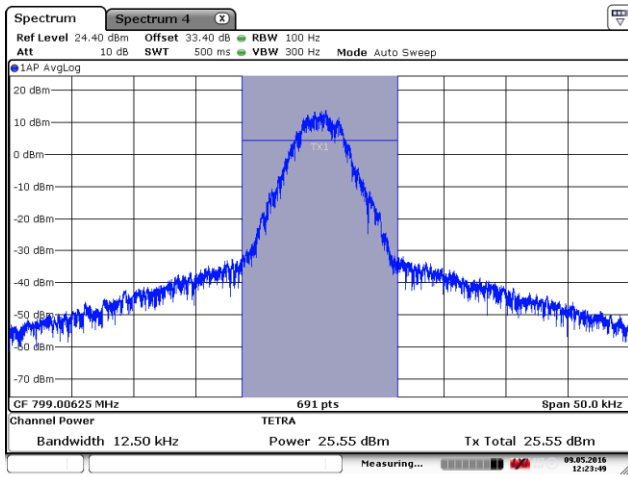
Mid Frequency: 772.00625MHz



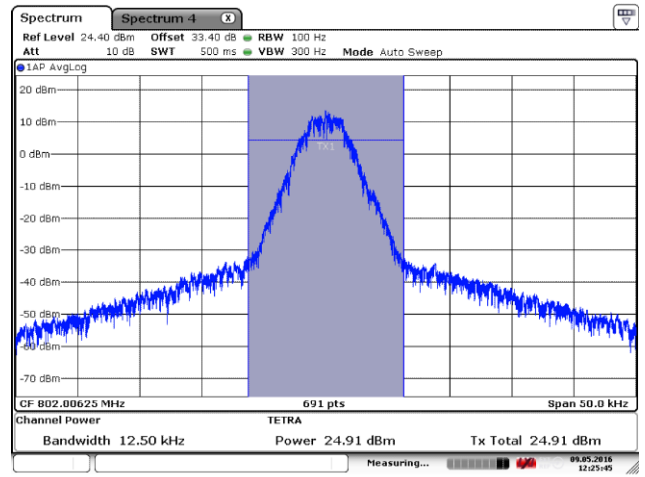
Date: 6.MAY.2016 08:48:46

Frequency: 774.99375MHz

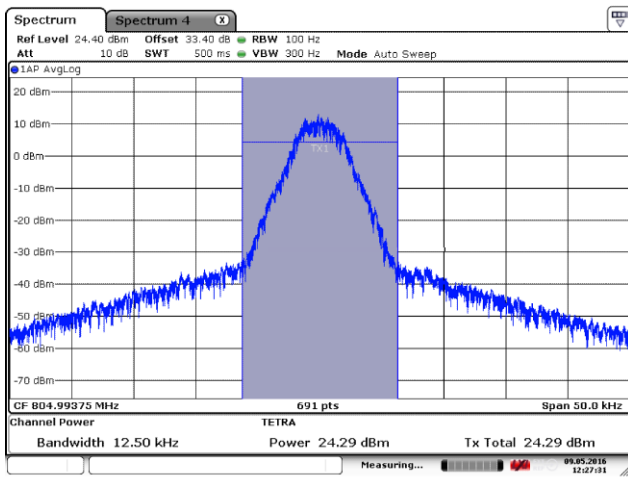
(2) Uplink



Low Frequency: 799.00625MHz



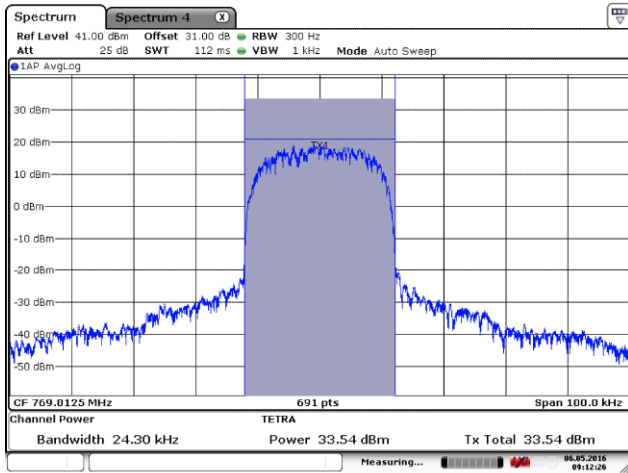
Mid Frequency: 802.00625MHz



High Frequency: 804.00625MHz

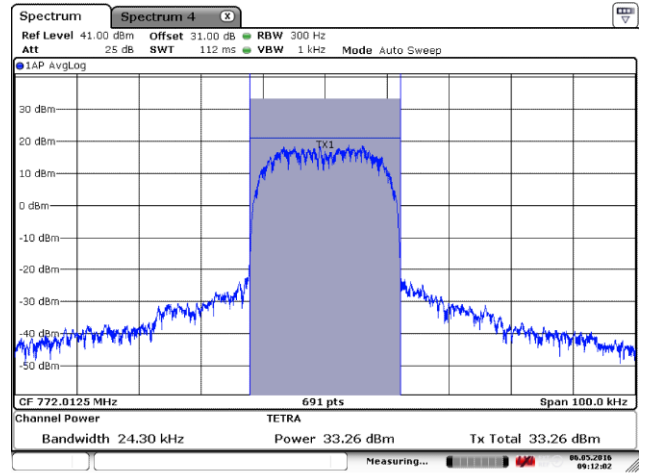
6.1.5.1.2 Modulation signal: Tetra

(1) Downlink



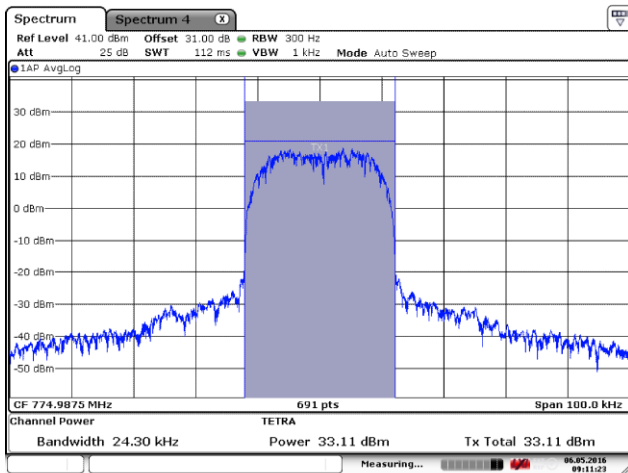
Date: 6.MAY.2016 09:12:26

Low Frequency: 769.0125MHz



Date: 6.MAY.2016 09:12:02

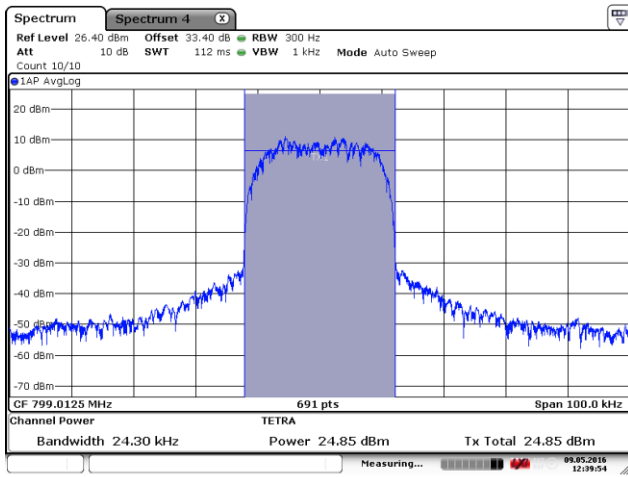
Mid Frequency: 772.0125MHz



Date: 6.MAY.2016 09:11:23

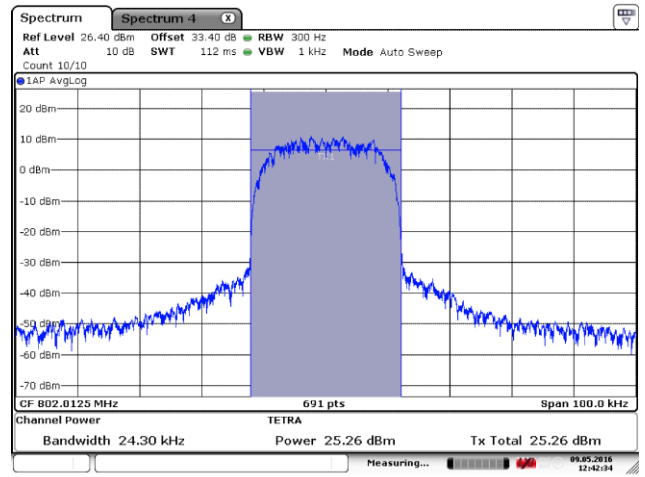
High Frequency: 774.9875MHz

(2) Uplink



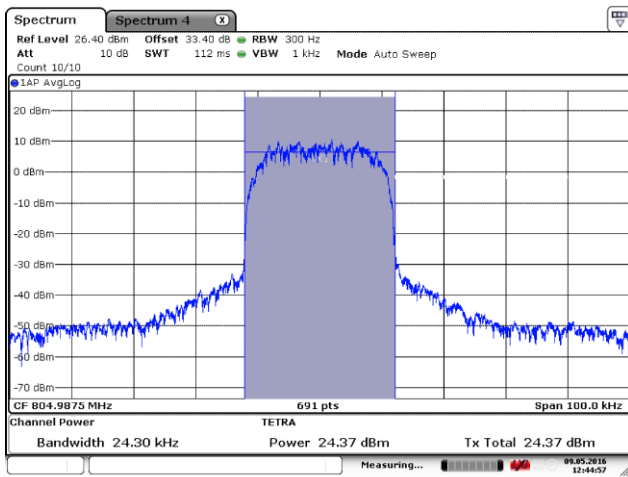
Date: 9.MAY.2016 12:39:55

Low Frequency: 799.0125MHz



Date: 9.MAY.2016 12:42:34

Mid Frequency: 802.0125MHz

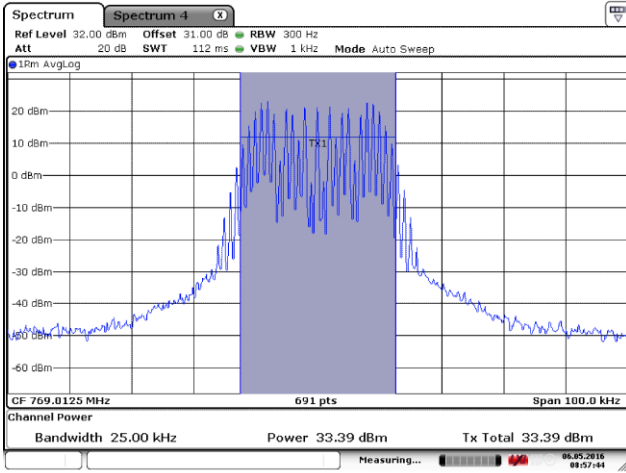


Date: 9.MAY.2016 12:44:57

Frequency: 804.9875MHz

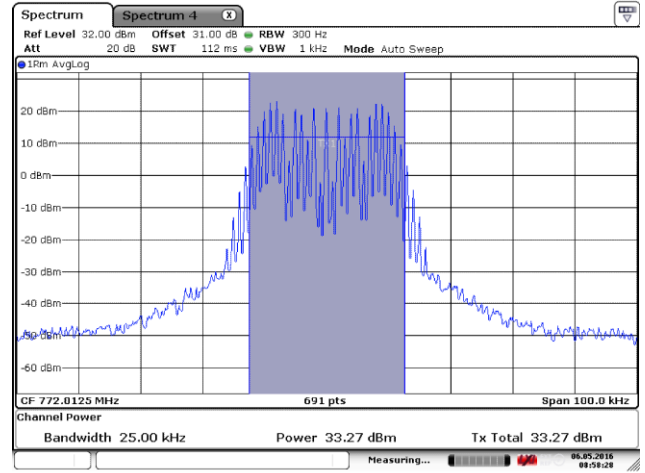
6.1.5.1.3 Modulation signal: Analog FM(10kHz/1kHz)

(1) Downlink



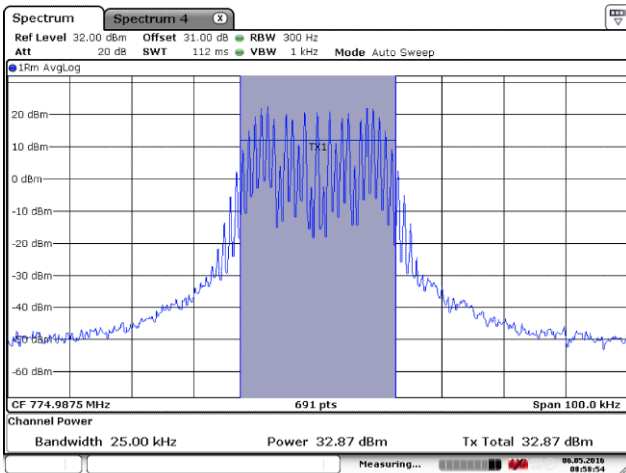
Date: 6.MAY.2016 08:57:43

Low Frequency: 769.0125MHz



Date: 6.MAY.2016 08:58:28

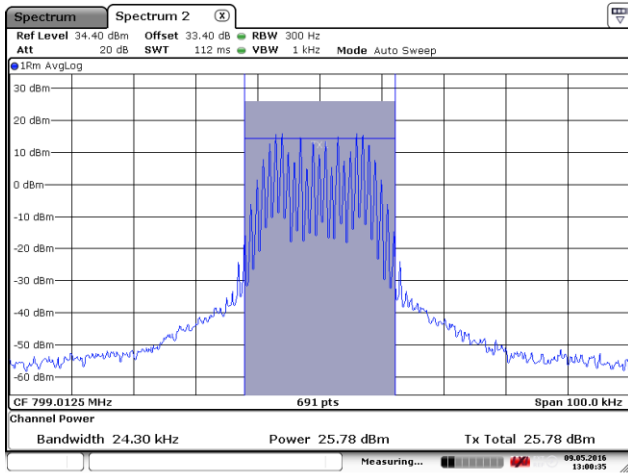
Mid Frequency: 772.0125MHz



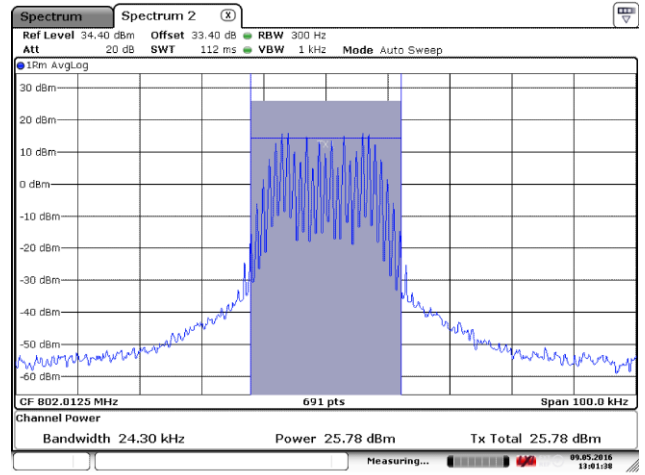
Date: 6.MAY.2016 08:58:54

High Frequency: 774.9875MHz

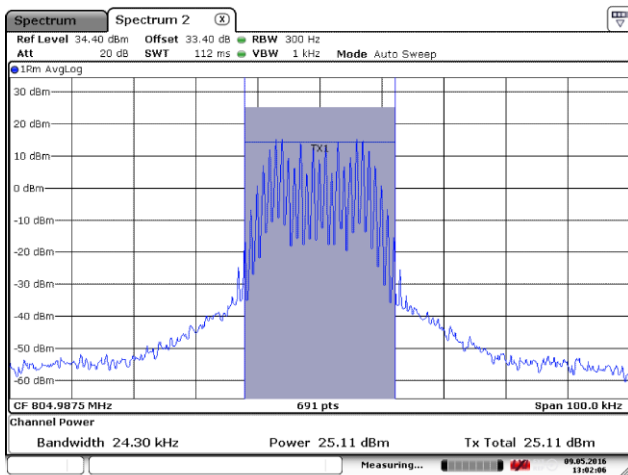
(2) Uplink



Low Frequency: 799.0125MHz



Mid Frequency: 802.0125MHz

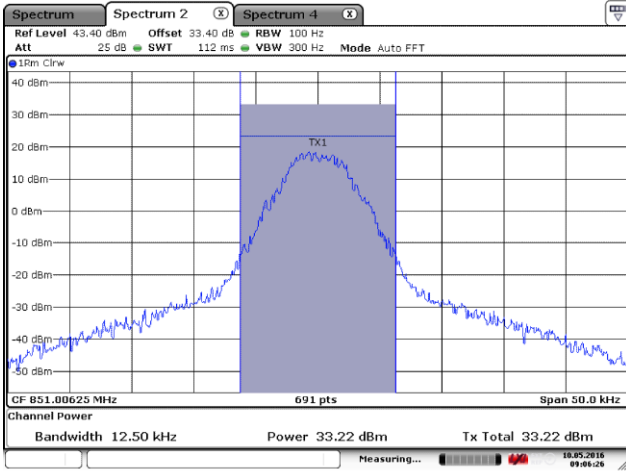


High Frequency: 804.9875MHz

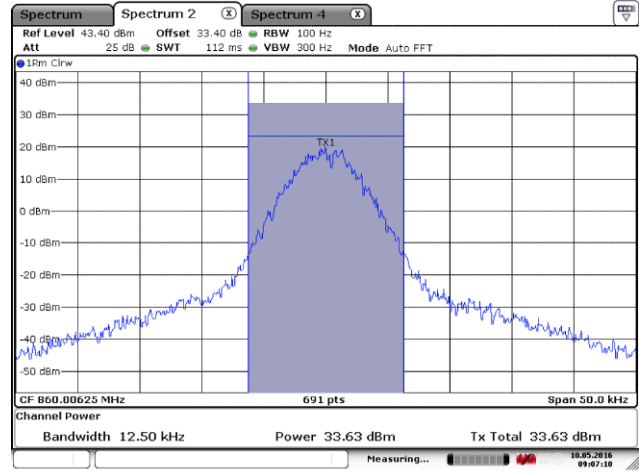
6.1.5.2 800MHz Band

6.1.5.2.1 Modulation signal: C4FM

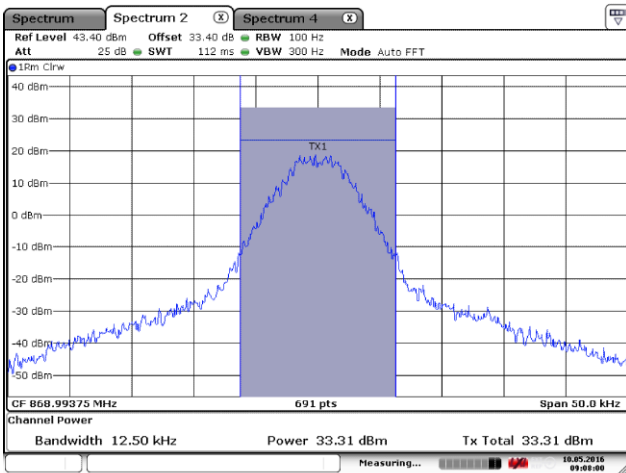
(1) Downlink



Low Frequency: 851.00625MHz

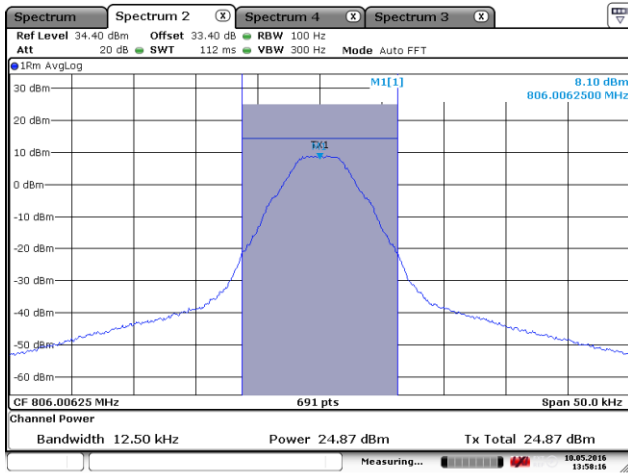


Mid Frequency: 860.00625MHz

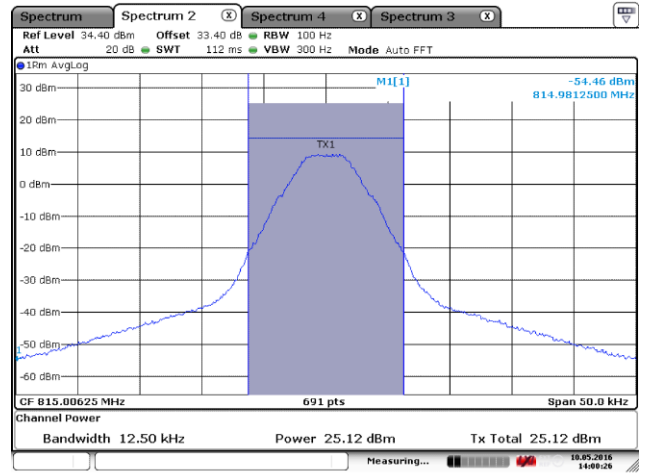


High Frequency: 868.99375MHz

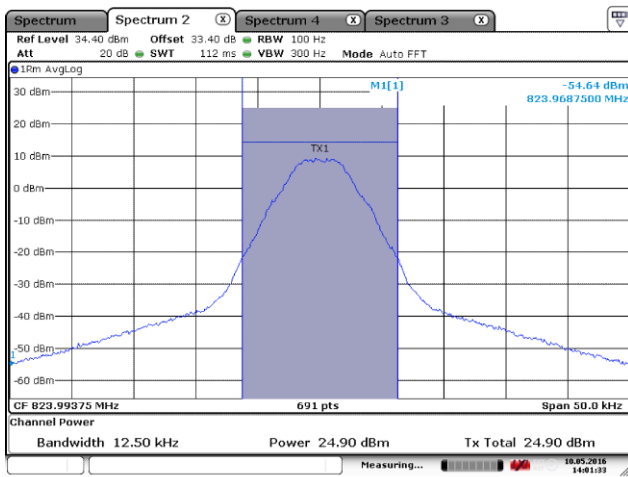
(2) Uplink



Low Frequency: 806.00625MHz



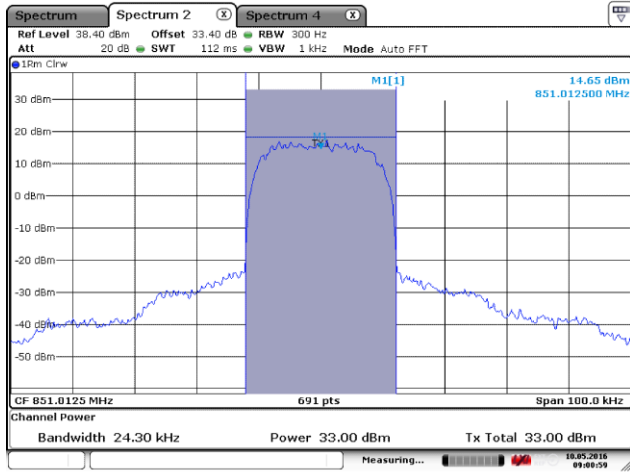
Mid Frequency: 815.00625MH



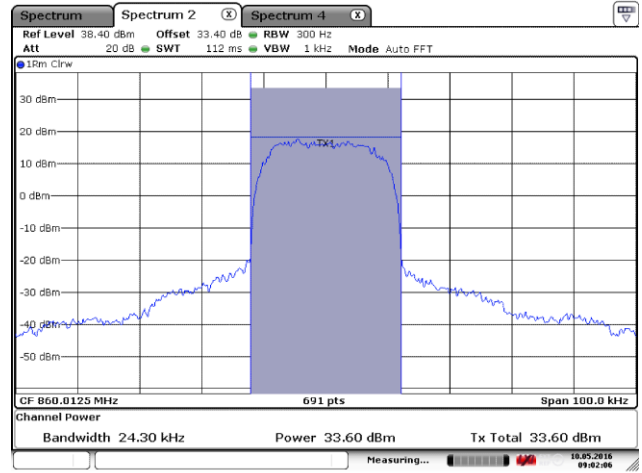
High Frequency: 823.99375MHz

6.1.5.2.2 Modulation signal: Tetra

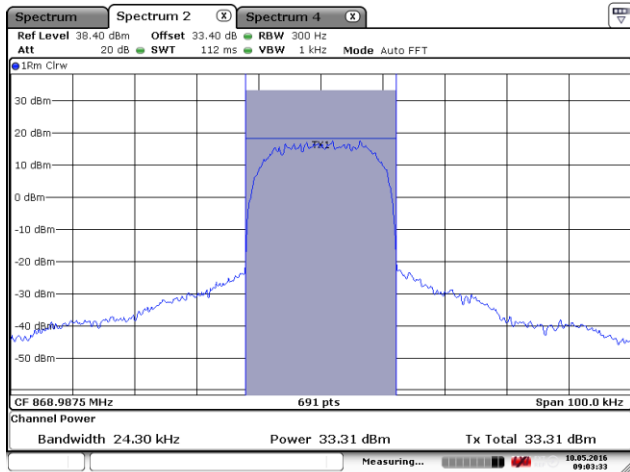
(1) Downlink



Low Frequency: 851.0125MHz

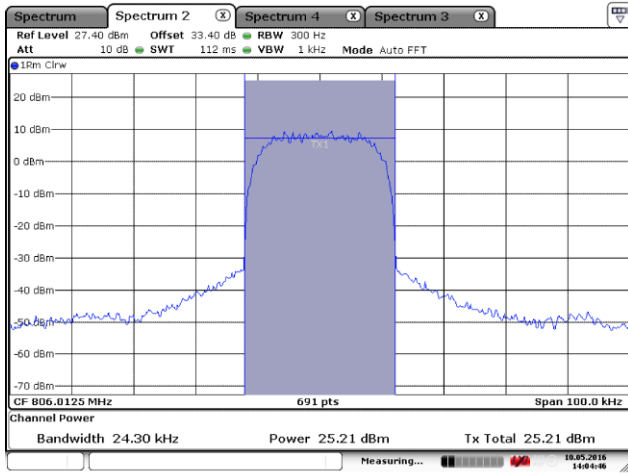


Mid Frequency: 860.0125MHz

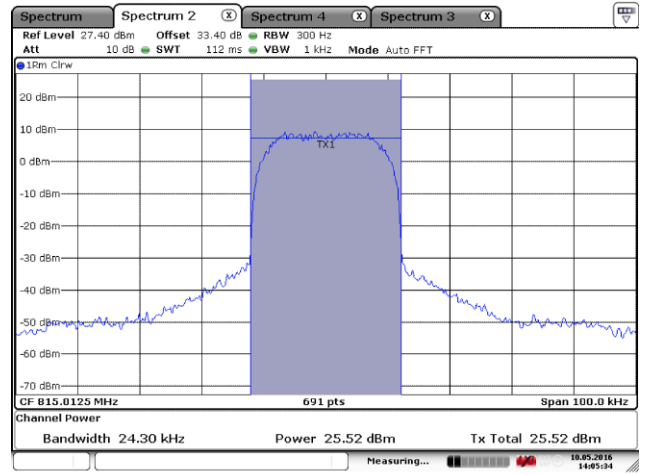


High Frequency: 868.9875MHz

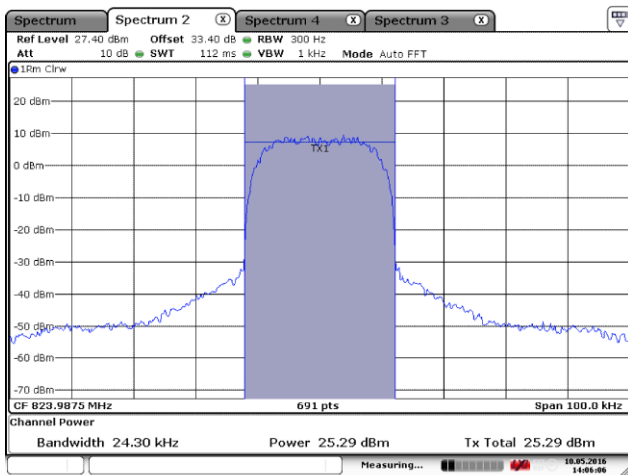
(2) Uplink



Low Frequency: 806.0125MHz



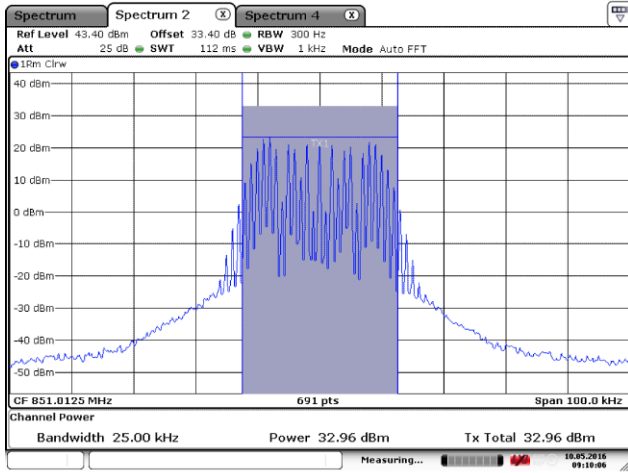
Mid Frequency: 815.0125MH



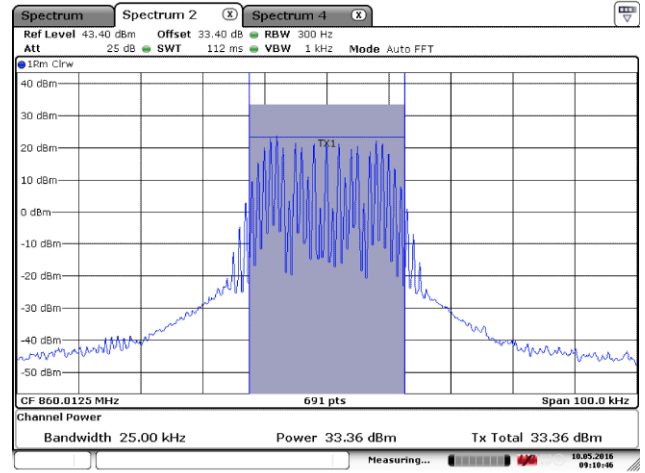
High Frequency: 823.9875MHz

6.1.5.2.3 Modulation signal: Analog FM(10kHz/1kHz)

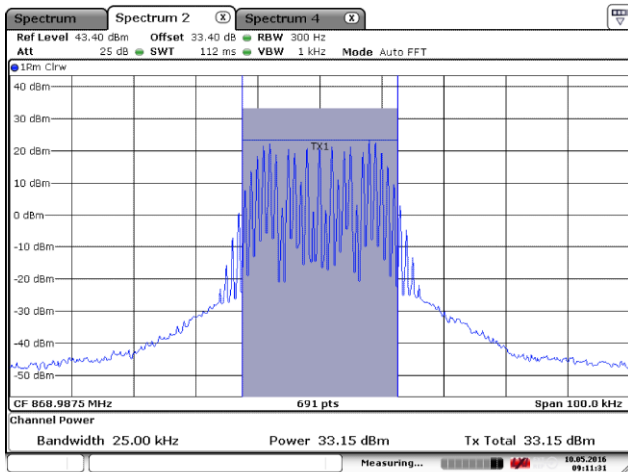
(1) Downlink



Low Frequency: 851.0125MHz

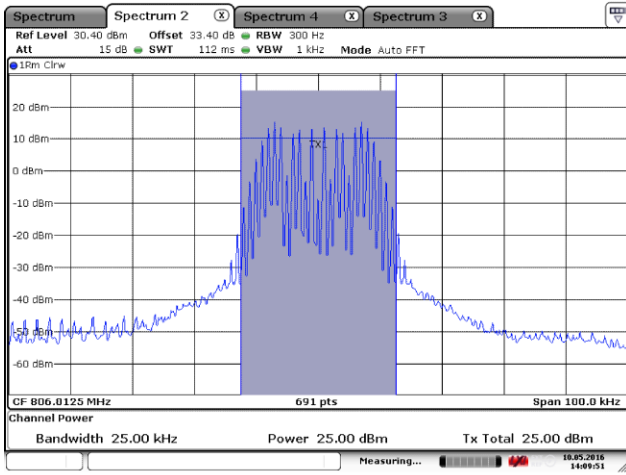


Mid Frequency: 860.0125MHz

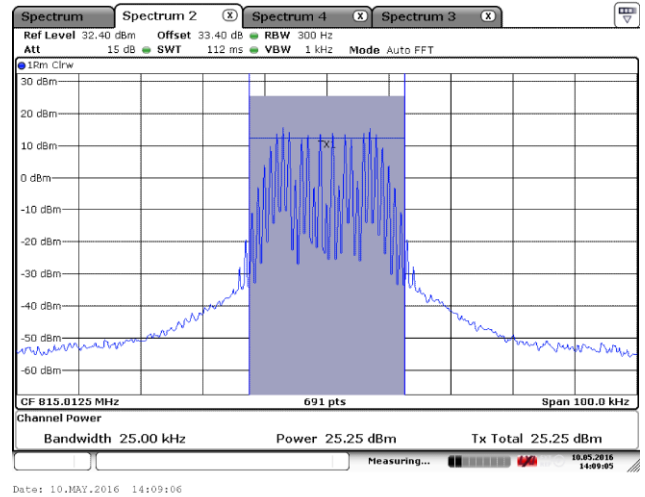


High Frequency: 868.9875MHz

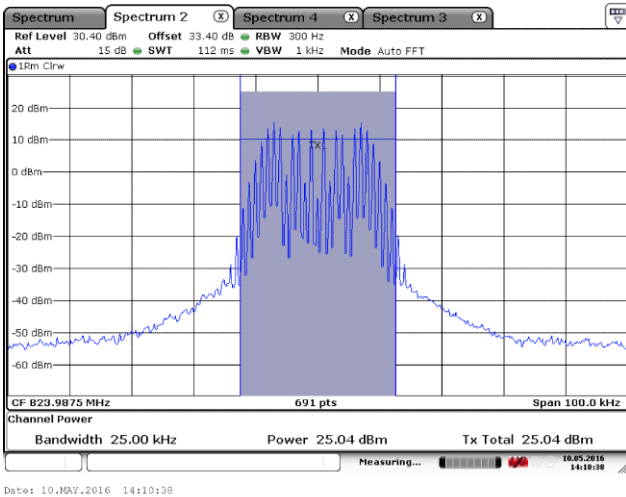
(2) Uplink



Low Frequency: 806.0125MHz



Mid Frequency: 815.0125MH



High Frequency: 823.9875MHz

6.2 Occupied bandwidth

Test Date (yy-mm-dd): 2016-05-06 to 2016-05-15

Test environment: Normal

Ambient Temp 24.5°C~26.3°C, Humid 49%~65%, Atmospheric Pressure 101kpa

Power supply: AC 120V 50/60Hz

Test Method: FCC part 2. 1049& KDB 935210 D05 Indus Booster Basic Meas v01r01

Test Requirement: FCC part 90.219(a)

6.2.1 Limit

A signal booster designed to retransmit signals on one or more specific channels. A signal booster is deemed to be a Class A signal booster if none of its passbands exceed 75 kHz

This test was performed to measure transmitter occupied bandwidth. Specification test limits are given in table 2.

Table 2 Occupied bandwidth limits

Assigned frequency (MHz)	Modulation envelope reference points(Occupied BW X% power)	Maximum allowed bandwidth (kHz)
700MHz Band Downlink: 758~775 Uplink:788~805	99	75
800MHz Band Downlink: 851~869 Uplink:806~824	99	75

NOTE:

1. RF channels to be tested for single-carrier: Low, Mid and High frequency;
2. Modulation types are C4FM, Tetra and Analog FM(10kHz/1kHz);
3. Modulation envelope reference points are provided in terms of attenuation below the unmodulated carrier.

6.2.2 Test configuration

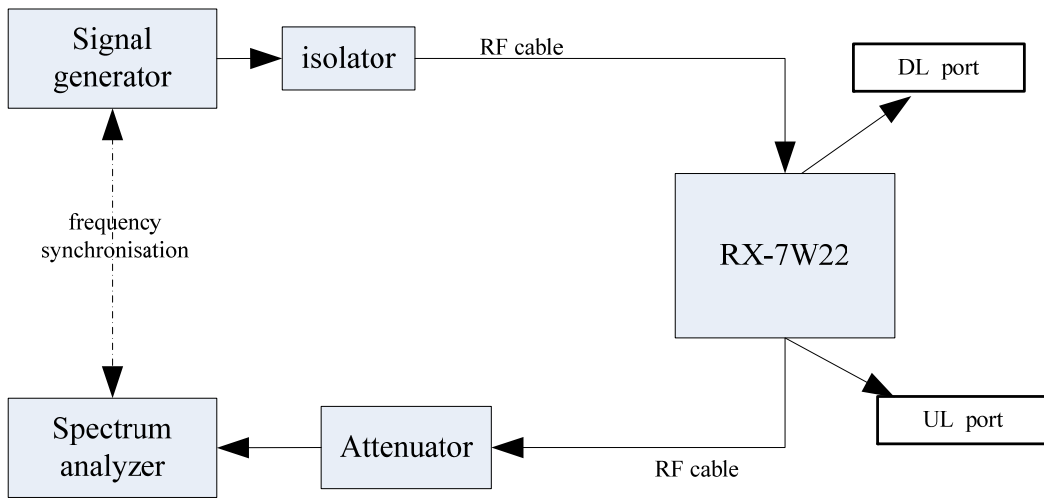


Figure 3: Occupied bandwidth arrangement for Downlink

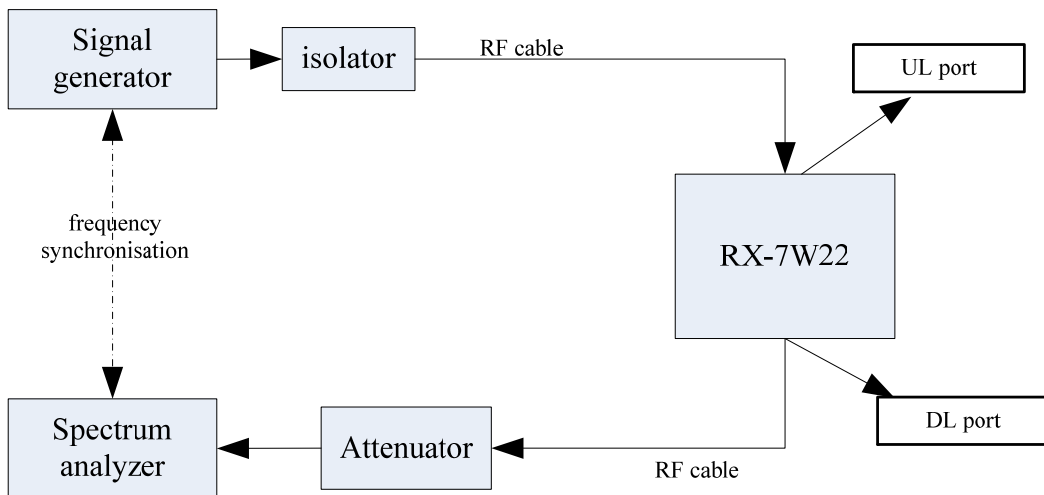


Figure 4: Occupied bandwidth arrangement for Uplink

6.2.3 Test procedures

- (1) Connect the equipment as illustrated Figure 3 and Figure 4, when the output power is over the maximum value of the Spectrum Analyzer, add the attenuator to avoid destroying;
- (2) Configure the signal generator to transmit the appropriate test signal associated with the public safety emission designation;
- (3) Configure the signal level to be just below the ALC threshold and maximum gain;
- (4) Connect a spectrum analyzer to the output of the EUT using appropriate attenuation as necessary;
- (5) Set the spectrum analyzer center frequency to the nominal EUT channel center frequency. The span range for the spectrum analyzer shall be between 2 times to 5 times the OBW;
- (6) The nominal RBW shall be 300 Hz for 25kHz and 100 Hz for all other emissions types;

- (7) Set the reference level of the spectrum analyzer to accommodate the maximum input amplitude level;
- (8) Set spectrum analyzer detection mode to peak, and trace mode to max hold;
- (9) Allow the trace to fully stabilize;
- (10) Confirm that the signal is contained within the appropriate emissions mask;
- (11) Use the marker function to determine the maximum emission level and record the associated frequency as f_0 ;
- (12) Capture the emissions mask plot for inclusion in the test report (output signal spectra);
- (13) Measure the EUT input signal power (signal generator output signal) directly from the signal generator using power measurement guidance provided in KDB Publication 971168 [R8] (input signal spectra);
- (14) Compare the spectral plot of the output signal (determined in step 11), to the input signal (determined in step 1) to affirm they are similar (in passband and roll off characteristic features and relative spectral locations);
- (15) Repeat steps (4) to (16) with the input signal amplitude set 3 dB above the AGC threshold;
- (16) Repeat steps (2) to (17) for all authorized operational bands and emissions types;
- (17) Include all accumulated spectral plots depicting EUT input signal and EUT output signal in the test report, and note any observed dissimilarities;
- (18) Repeat RF channels to be tested for single-carrier: Low and High frequency;

6.2.4 Test Results

6.2.4.1 700MHz Band

6.2.4.1.1 Modulation signal: C4FM

Resolution Bandwidth: 100 Hz
 Video Bandwidth: 300 Hz
 Detector mode: Peak hold
 Trace mode: Maximum hold
 Modulation envelope reference points: Occupied BW 99% power
 Configuration: Single Band
 Symbol Rate: 4.8ksps
 Operating frequency range: Downlink: 769MHz~775MHz
 Uplink:799MHz~805MHz

Carrier frequency (MHz)	Input power (dBm)	Input Occupied BW (kHz)	Output Occupied BW (kHz)	Limit(kHz)	Result
Downlink transmit mode					
769.00625	-56.50	8.393632417	8.321273517	75.00	pass
	-53.50	8.393632417	8.321273517	75.00	pass
772.00625	-57.40	8.321273517	8.321273517	75.00	pass
	-54.40	8.321273517	8.321273517	75.00	pass
774.99375	-57.00	8.393632417	8.321273517	75.00	pass
	-54.00	8.393632417	8.321273517	75.00	pass
Uplink transmit mode					
799.00625	-64.30	8.393632417	8.393632417	75.00	pass
	-61.30	8.393632417	8.683068017	75.00	pass
802.00625	-64.00	8.321273517	8.248914617	75.00	pass
	-61.00	8.321273517	8.755426918	75.00	pass
804.99375	-63.00	8.393632417	8.321273517	75.00	pass
	-60.00	8.393632417	8.683068017	75.00	pass

6.2.4.1.2 Modulation signal: Tetra

Resolution Bandwidth:	300 Hz
Video Bandwidth:	1 kHz
Detector mode:	Peak hold
Trace mode:	Maximum hold
Modulation envelope reference points	Occupied BW 99% power
Configuration:	Single Band
Symbol Rate:	18ksps
Operating frequency range:	Downlink: 769MHz~775MHz Uplink:799MHz~805MHz

Carrier frequency (MHz)	Input power (dBm)	Input Occupied BW (kHz)	Output Occupied BW (kHz)	Limit(kHz)	Result
Downlink transmit mode					
769.0125	-56.70	20.984081042	20.984081042	75.00	pass
	-53.70	20.984081042	20.984081042	75.00	pass
772.0125	-57.80	20.984081042	20.984081042	75.00	pass
	-54.80	20.984081042	20.984081042	75.00	pass
774.9875	-56.80	20.984081042	20.984081042	75.00	pass
	-53.80	20.984081042	20.984081042	75.00	pass
Uplink transmit mode					
799.0125	-64.00	20.984081042	20.984081042	75.00	pass
	-61.00	20.984081042	20.984081042	75.00	pass
802.0125	-64.30	21.128798842	20.984081042	75.00	pass
	-61.30	21.128798842	20.984081042	75.00	pass
804.9875	-62.80	20.984081042	20.984081042	75.00	pass
	-59.80	20.984081042	20.984081042	75.00	pass

6.2.4.1.3 Modulation signal: Analog FM(10kHz/1kHz)

Resolution Bandwidth: 300 Hz
 Video Bandwidth: 1 kHz
 Detector mode: Peak hold
 Trace mode: Maximum hold
 Modulation envelope reference points: Occupied BW 99% power
 Configuration: Single Band
 Symbol Rate: 1ksps
 Frequency Dev: 10kHz
 Operating frequency range: Downlink: 769MHz~775MHz
 Uplink: 799MHz~805MHz

Carrier frequency (MHz)	Input power (dBm)	Input Occupied BW (kHz)	Output Occupied BW (kHz)	Limit(kHz)	Result
Downlink transmit mode					
769.0125	-56.60	23.878437048	23.878437048	75.00	pass
	-53.60	23.878437048	23.878437048	75.00	pass
772.0125	-57.50	23.878437048	23.878437048	75.00	pass
	-54.50	23.878437048	23.878437048	75.00	pass
774.9875	-57.10	23.878437048	23.878437048	75.00	pass
	-54.10	23.878437048	23.878437048	75.00	pass
Uplink transmit mode					
799.0125	-65.50	23.878437048	23.878437048	75.00	pass
	-62.50	23.878437048	23.878437048	75.00	pass
802.0125	-64.50	23.878437048	23.878437048	75.00	pass
	-61.50	23.878437048	23.878437048	75.00	pass
804.9875	-64.50	23.878437048	23.878437048	75.00	pass
	-61.50	23.878437048	23.878437048	75.00	pass

6.2.4.2 800MHz Band

6.2.4.2.1 Modulation signal: C4FM

Resolution Bandwidth: 100 Hz
 Video Bandwidth: 300 Hz
 Detector mode: Peak hold
 Trace mode: Maximum hold
 Modulation envelope reference points: Occupied BW 99% power
 Configuration: Single Band
 Symbol Rate: 4.8ksps
 Operating frequency range: Downlink: 851MHz~869MHz
 Uplink:806MHz~824MHz

Carrier frequency (MHz)	Input power (dBm)	Input Occupied BW (kHz)	Output Occupied BW (kHz)	Limit(kHz)	Result
Downlink transmit mode					
851.00625	-56.20	8.393632417	8.683068017	75.00	pass
	-53.20	8.393632417	8.248914616	75.00	pass
860.00625	-57.90	8.393632417	8.610709117	75.00	pass
	-54.90	8.393632417	8.683068017	75.00	pass
868.99375	-57.40	8.393632417	8.683068017	75.00	pass
	-54.40	8.393632417	8.683068017	75.00	pass
Uplink transmit mode					
806.00625	-64.30	8.321273517	8.393632417	75.00	pass
	-61.30	8.321273517	8.393632417	75.00	pass
815.00625	-65.70	8.321273517	8.321273517	75.00	pass
	-62.70	8.321273517	8.393632417	75.00	pass
823.99375	-66.30	8.393632417	8.393632417	75.00	pass
	-63.30	8.393632417	8.321273517	75.00	pass

6.2.4.2.2 Modulation signal: Tetra

Resolution Bandwidth: 300 Hz
 Video Bandwidth: 1 kHz
 Detector mode: Peak hold
 Trace mode: Maximum hold
 Modulation envelope reference points: Occupied BW 99% power
 Configuration: Single Band
 Symbol Rate: 18ksps
 Operating frequency range: Downlink: 851MHz~869MHz
 Uplink:806MHz~824MHz

Carrier frequency (MHz)	Input power (dBm)	Input Occupied BW (kHz)	Output Occupied BW (kHz)	Limit(kHz)	Result
Downlink transmit mode					
851.0125	-56.30	21.128798842	20.984081042	75.00	pass
	-53.30	21.128798842	20.984081042	75.00	pass
860.0125	-57.60	20.984081042	20.839363242	75.00	pass
	-54.60	20.984081042	20.984081042	75.00	pass
868.9875	-57.20	20.984081042	20.839363242	75.00	pass
	-54.20	20.984081042	20.839363242	75.00	pass
Uplink transmit mode					
806.0125	-63.80	20.984081042	20.984081042	75.00	pass
	-60.80	20.984081042	20.984081042	75.00	pass
815.0125	-65.30	20.984081042	20.984081042	75.00	pass
	-62.30	20.984081042	20.984081042	75.00	pass
823.9875	-66.00	20.984081042	20.984081042	75.00	pass
	-63.00	20.984081042	20.984081042	75.00	pass

6.2.4.2.3 Modulation signal: Analog FM(10kHz/1kHz)

Resolution Bandwidth: 300 Hz
 Video Bandwidth: 1 kHz
 Detector mode: Peak hold
 Trace mode: Maximum hold
 Modulation envelope reference points: Occupied BW 99% power
 Configuration: Single Band
 Symbol Rate: 1ksps
 Frequency Dev: 10kHz
 Operating frequency range: Downlink: 851MHz~869MHz
 Uplink:806MHz~824MHz

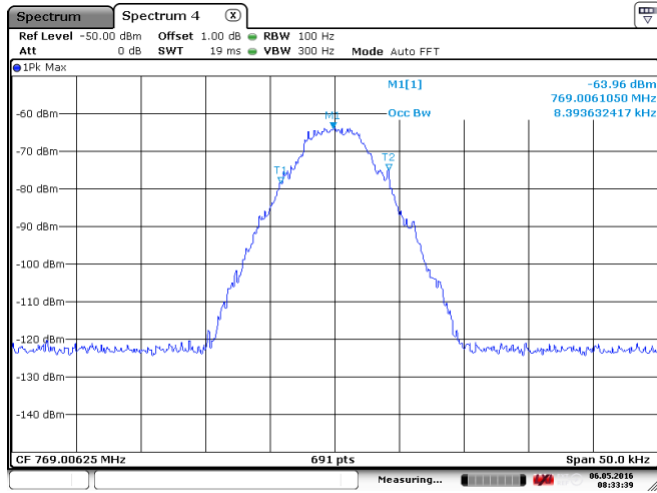
Carrier frequency (MHz)	Input power (dBm)	Input Occupied BW (kHz)	Output Occupied BW (kHz)	Limit(kHz)	Result
Downlink transmit mode					
851.0125	-56.20	23.733719247	23.154848046	75.00	pass
	-53.20	23.733719247	23.154848046	75.00	pass
860.0125	-57.70	23.733719247	23.154848046	75.00	pass
	-54.70	23.733719247	23.154848046	75.00	pass
868.9875	-57.20	23.733719247	23.154848046	75.00	pass
	-54.20	23.733719247	23.154848046	75.00	pass
Uplink transmit mode					
806.0125	-64.00	23.878437048	23.733719247	75.00	pass
	-61.00	23.878437048	23.589001447	75.00	pass
815.0125	-65.60	23.878437048	23.733719247	75.00	pass
	-62.60	23.878437048	23.733719247	75.00	pass
823.9875	-66.30	23.878437048	23.733719247	75.00	pass
	-63.30	23.878437048	23.733719247	75.00	pass

6.2.5 Test screenshot

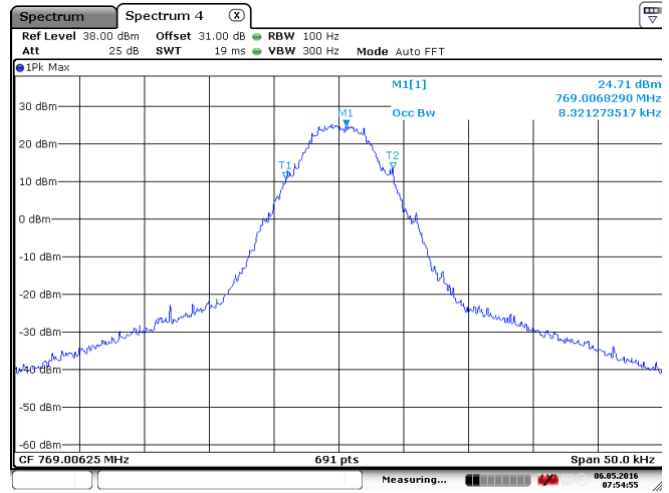
6.2.5.1 700MHz Band

6.2.5.1.1 Modulation signal: C4FM

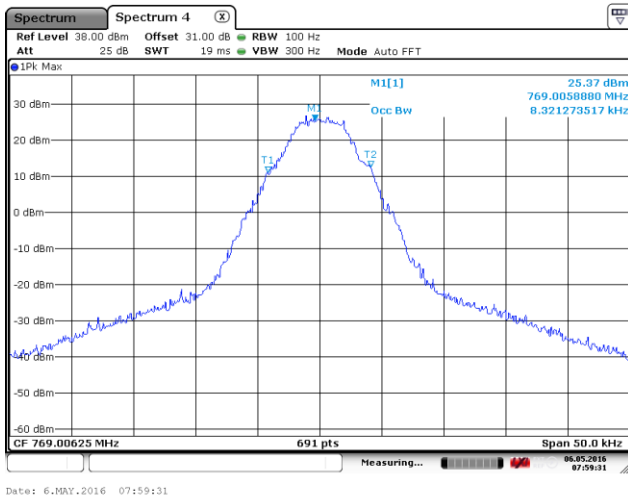
(1) Downlink



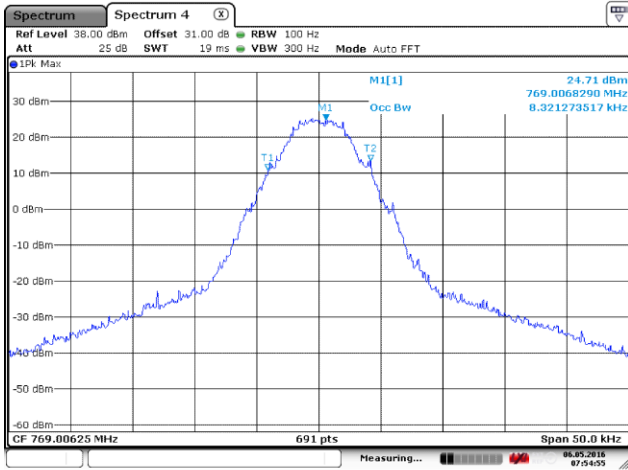
Low Frequency: 769.00625MHz, Input occupied BW



Low Frequency: 769.00625MHz, Output occupied BW(ALC)

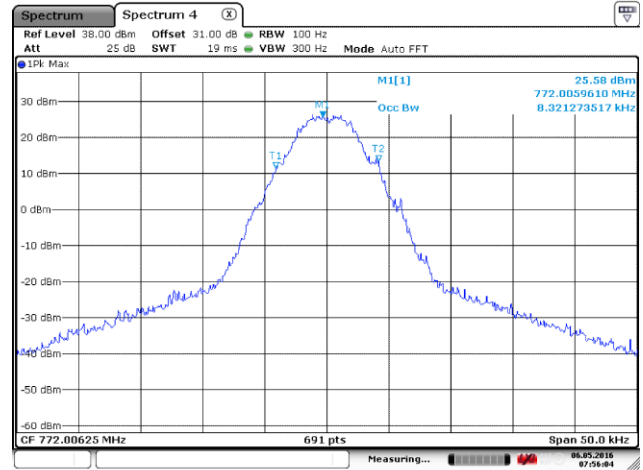


Low Frequency: 769.00625MHz, Output occupied BW (with the input signal amplitude set 3 dB above the ALC threshold)



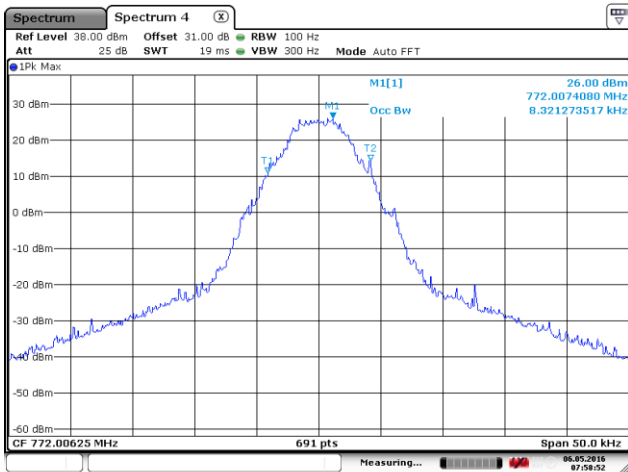
Date: 6.MAY.2016 07:54:55

Mid Frequency: 772.00625MHz, Input occupied BW



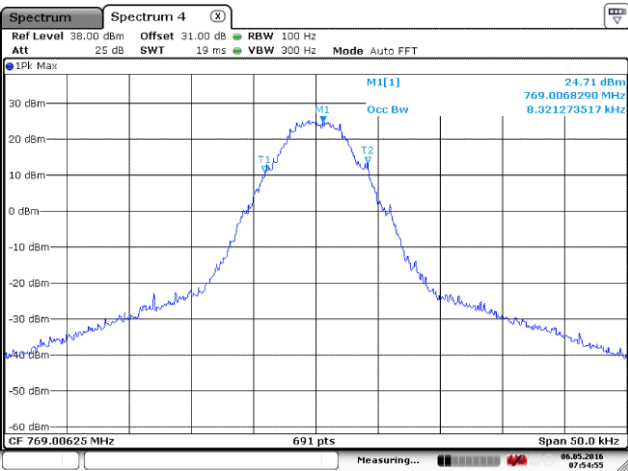
Date: 6.MAY.2016 07:56:04

Mid Frequency: 772.00625MHz, Output occupied BW(ALC)



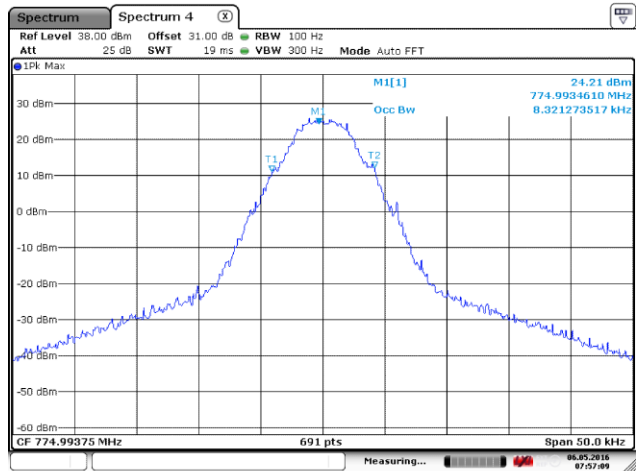
Date: 6.MAY.2016 07:58:51

Mid Frequency: 772.00625MHz, Output occupied BW (with the input signal amplitude set 3 dB above the ALC threshold)



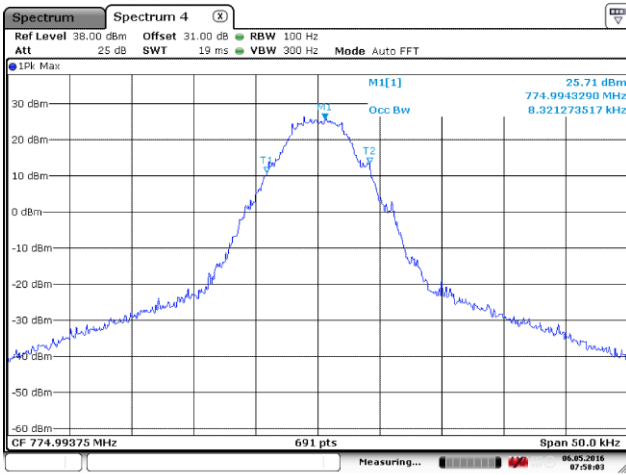
Date: 6.MAY.2016 07:54:55

High Frequency: 774.99375MHz, Input occupied BW



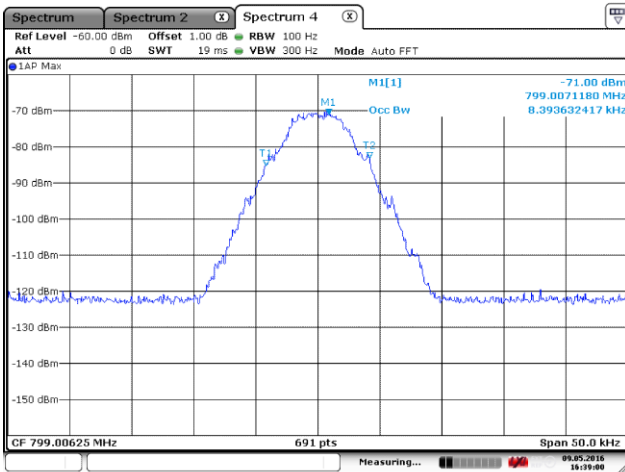
Date: 6.MAY.2016 07:57:09

High Frequency: 774.99375MHz, Output occupied BW(ALC)

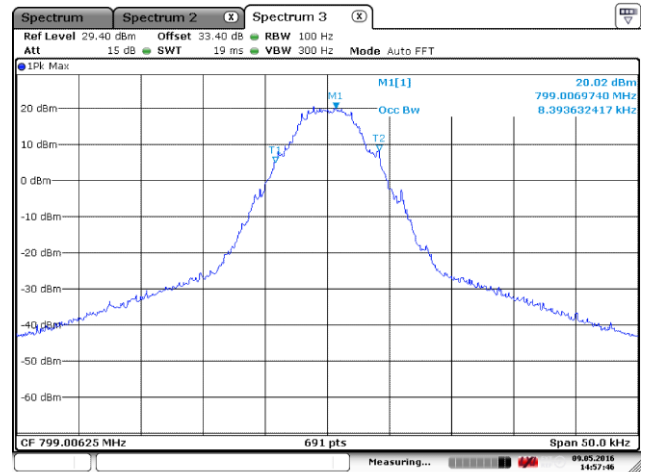


High Frequency: 774.99375MHz, Output occupied BW (with the input signal amplitude set 3 dB above the ALC threshold)

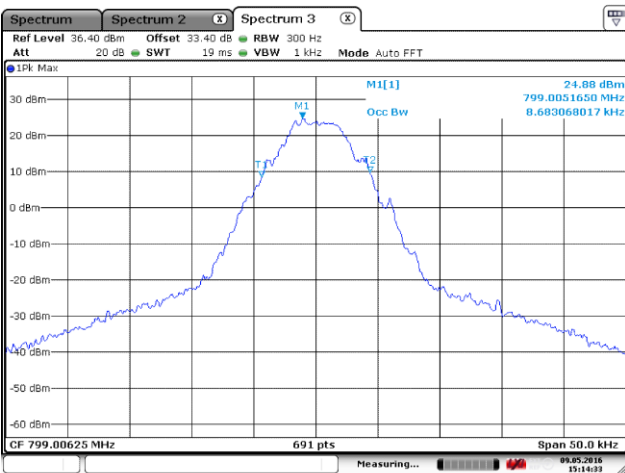
(2) Uplink



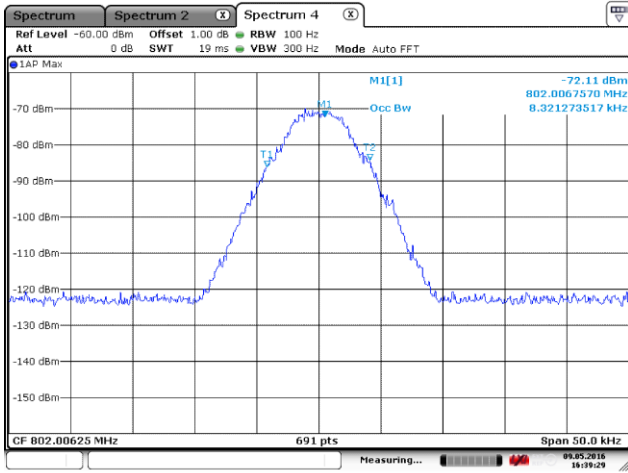
Low Frequency: 799.00625MHz, Input occupied BW



Low Frequency: 799.00625MHz, Output occupied BW(ALC)

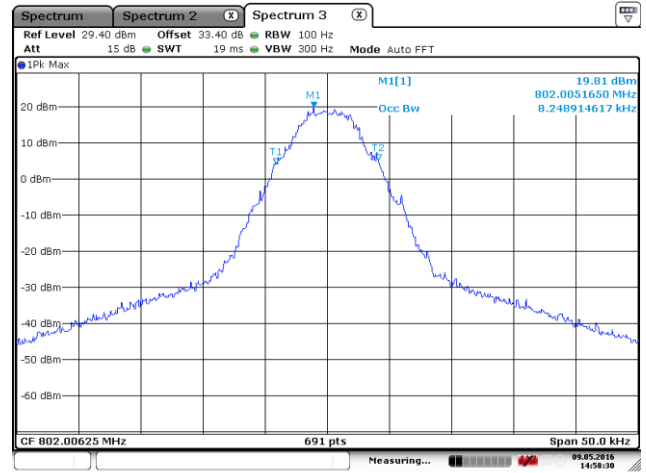


Low Frequency: 799.00625MHz, Output occupied BW (with the input signal amplitude set 3 dB above the ALC threshold)



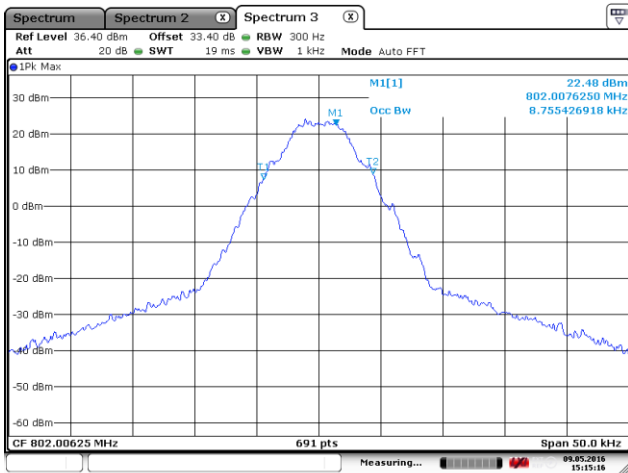
Date: 9.MAY.2016 16:39:29

Mid Frequency: 802.00625MHz, Input occupied BW



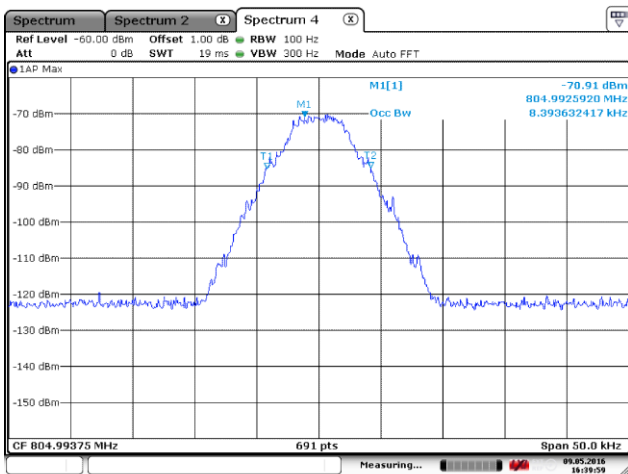
Date: 9.MAY.2016 14:58:30

Mid Frequency: 802.00625MHz, Output occupied BW(ALC)



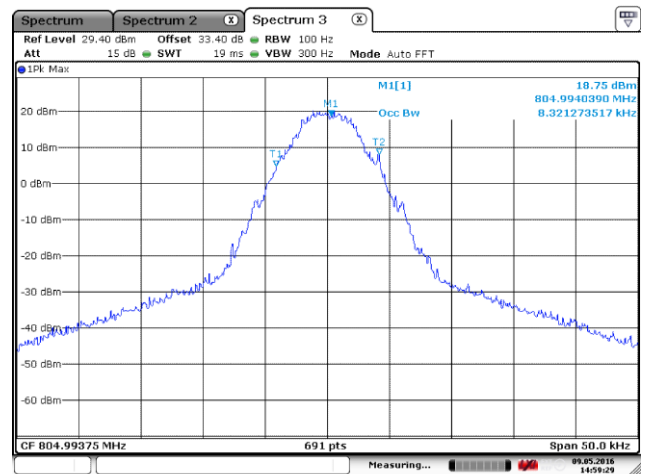
Date: 9.MAY.2016 15:15:17

Mid Frequency: 802.00625MHz, Output occupied BW (with the input signal amplitude set 3 dB above the ALC threshold)



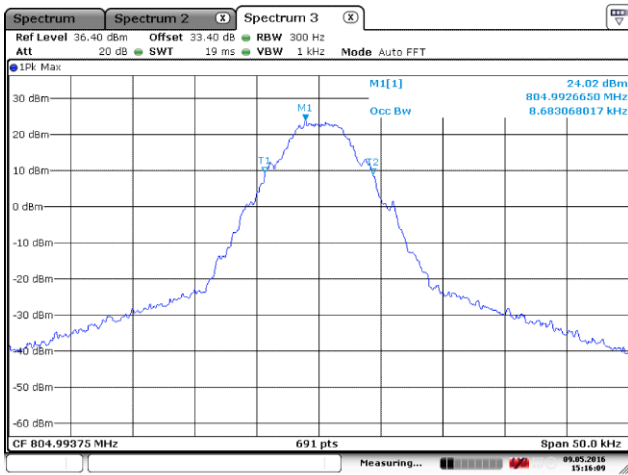
Date: 9.MAY.2016 16:40:00

High Frequency: 804.99375MHz, Input occupied BW



Date: 9.MAY.2016 14:59:29

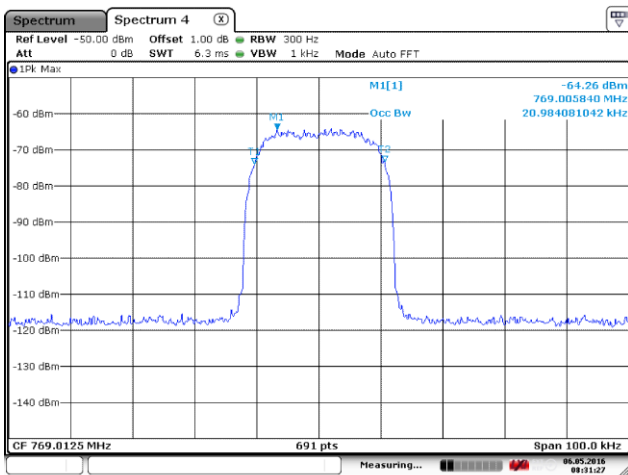
High Frequency: 804.99375MHz, Output occupied BW(ALC)



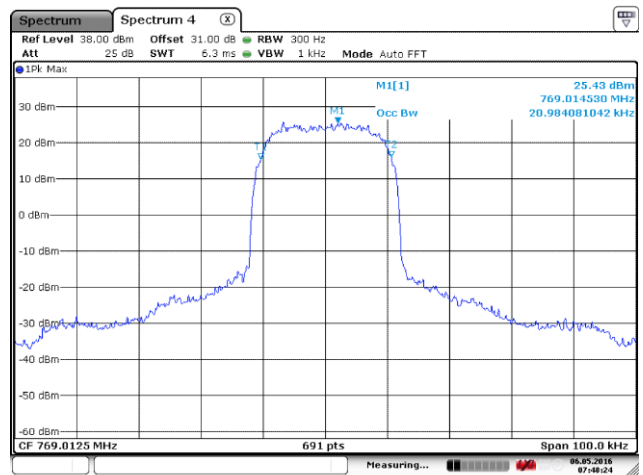
High Frequency: 804.99375MHz, Output occupied BW (with the input signal amplitude set 3 dB above the ALC threshold)

6.2.5.1.2 Modulation signal: Tetra

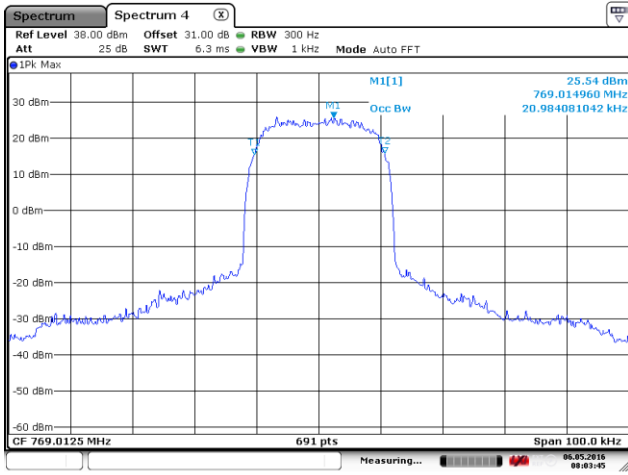
(1) Downlink



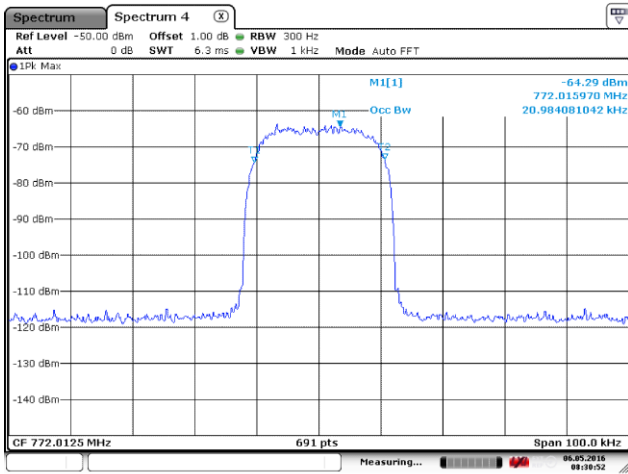
Low Frequency: 769.0125MHz, Input occupied BW



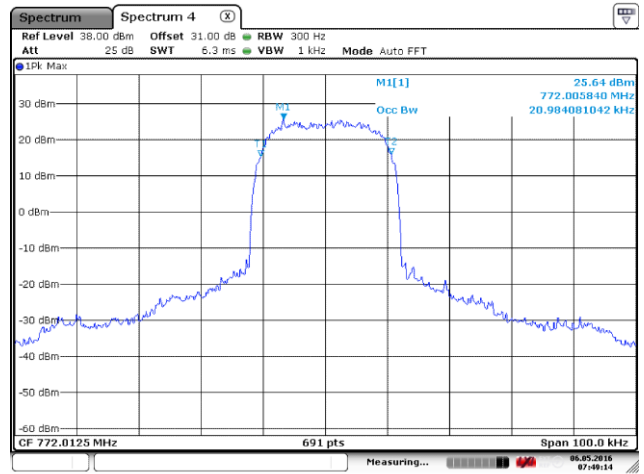
Low Frequency: 769.0125MHz, Output occupied BW(ALC)



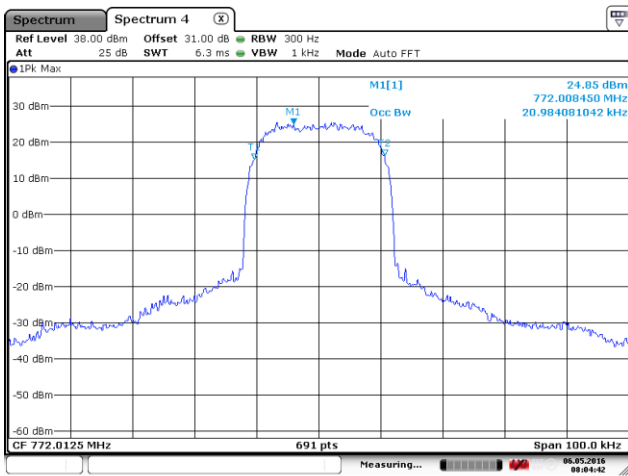
Low Frequency: 769.0125MHz, Output occupied BW (with the input signal amplitude set 3 dB above the ALC threshold)



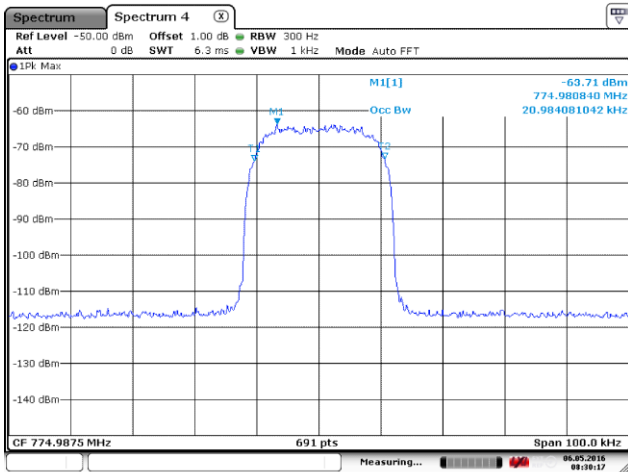
Mid Frequency: 772.0125MHz, Input occupied BW



Mid Frequency: 772.0125MHz, Output occupied BW(ALC)

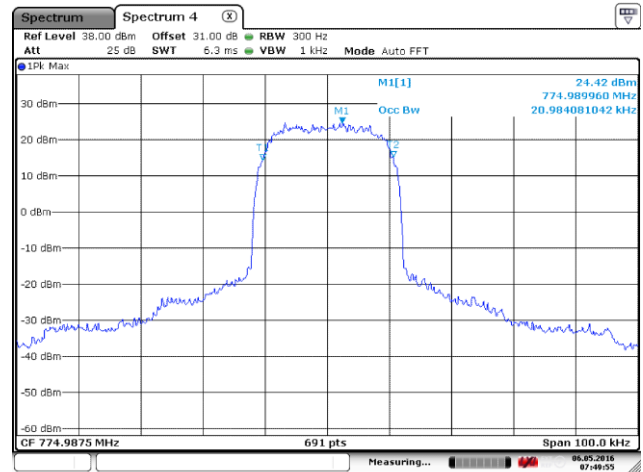


Mid Frequency: 772.0125MHz, Output occupied BW (with the input signal amplitude set 3 dB above the ALC threshold)



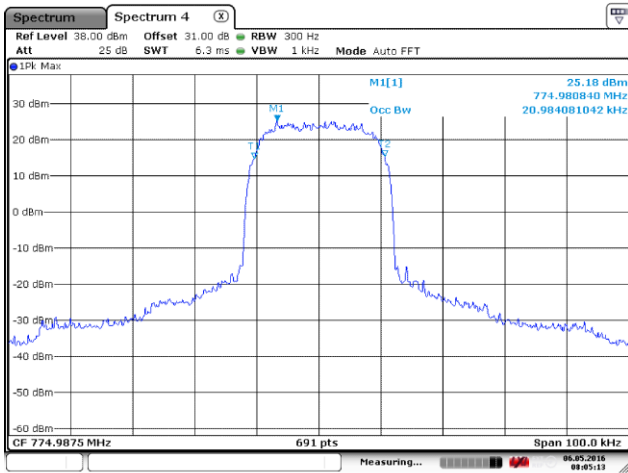
Date: 6.MAY.2016 08:30:17

High Frequency: 774.9875MHz, Input occupied BW



Date: 6.MAY.2016 07:49:55

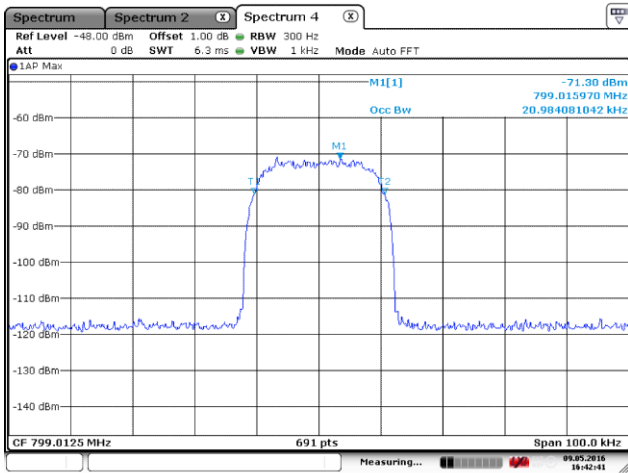
High Frequency: 774.9875MHz, Output occupied BW(ALC)



Date: 6.MAY.2016 08:05:12

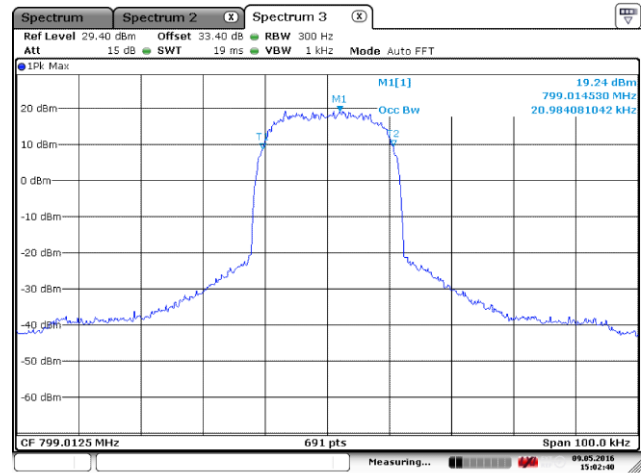
High Frequency: 774.9875MHz, Output occupied BW (with the input signal amplitude set 3 dB above the ALC threshold)

(2) Uplink



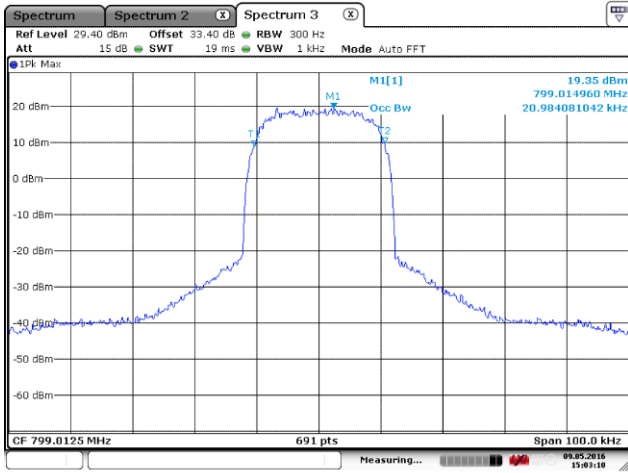
Date: 9.MAY.2016 16:42:41

Low Frequency: 799.0125MHz, Input occupied BW

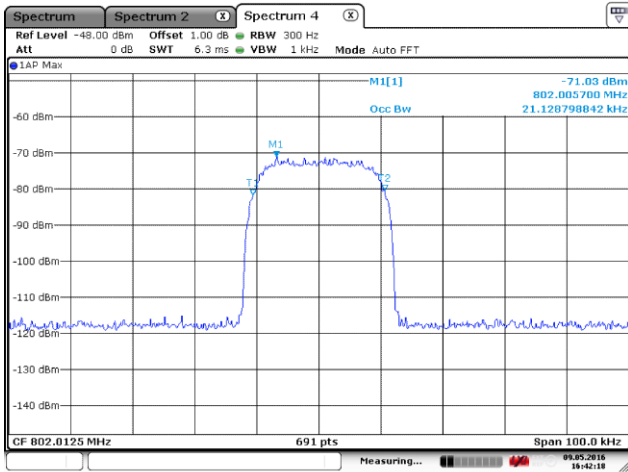


Date: 9.MAY.2016 15:02:40

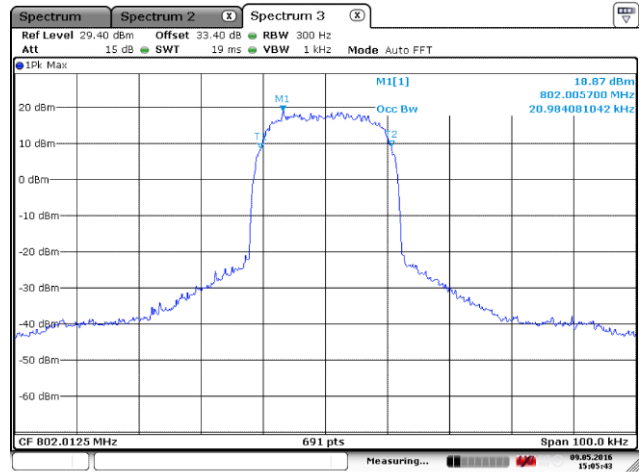
Low Frequency: 799.0125MHz, Output occupied BW(ALC)



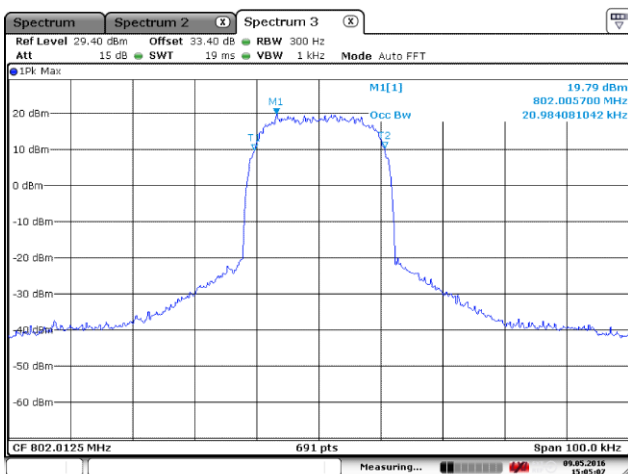
Low Frequency: 799.0125MHz, Input occupied BW (with the input signal amplitude set 3 dB above the ALC threshold)



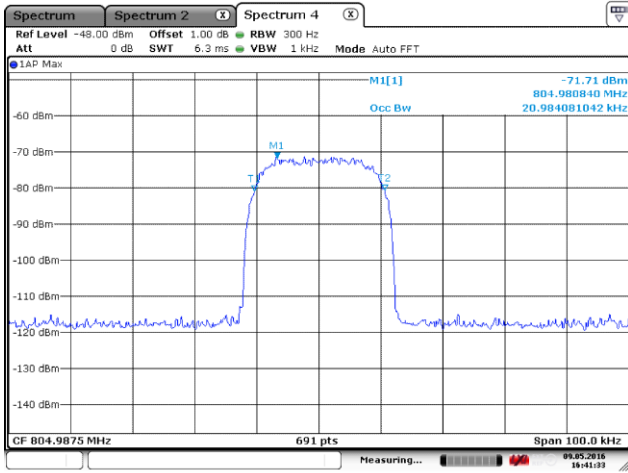
Mid Frequency: 802.0125MHz, Input occupied BW



Mid Frequency: 802.0125MHz, Output occupied BW(ALC)

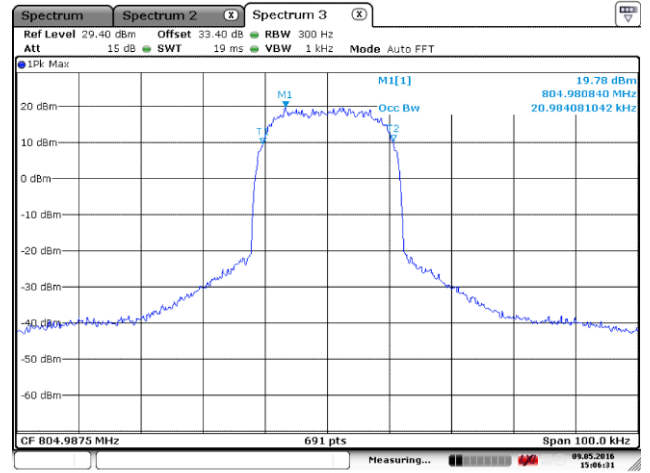


Mid Frequency: 802.0125MHz, Input occupied BW (with the input signal amplitude set 3 dB above the ALC threshold)



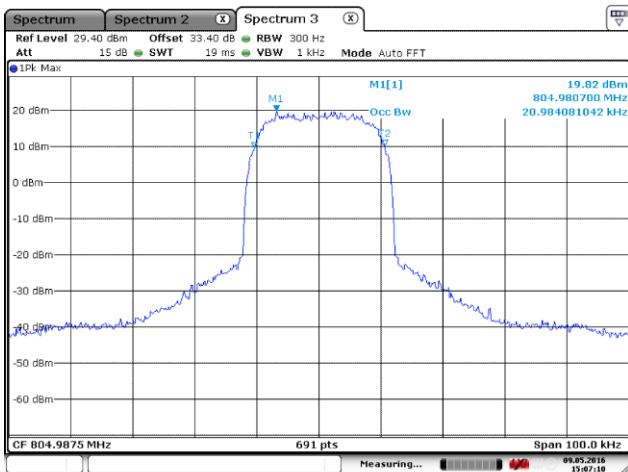
Date: 9.MAY.2016 16:41:33

High Frequency: 804.9875MHz, Input occupied BW



Date: 9.MAY.2016 15:06:32

High Frequency: 804.9875MHz, Output occupied BW(ALC)

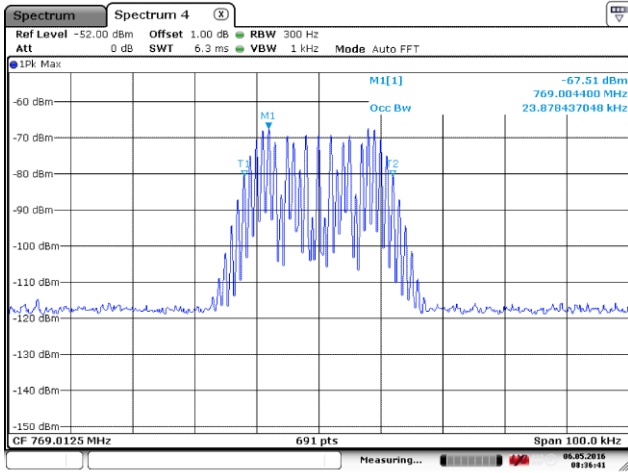


Date: 9.MAY.2016 15:07:11

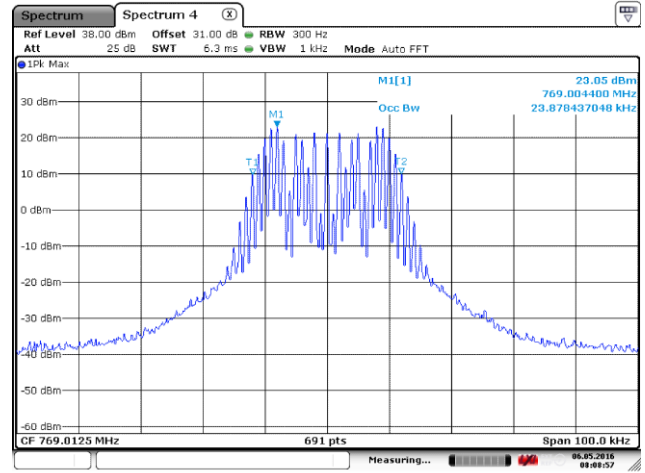
High Frequency: 804.9875MHz, Input occupied BW(with the input signal amplitude set 3 dB above the ALC threshold)

6.2.5.1.3 Modulation signal: Analog FM(10kHz/1kHz)

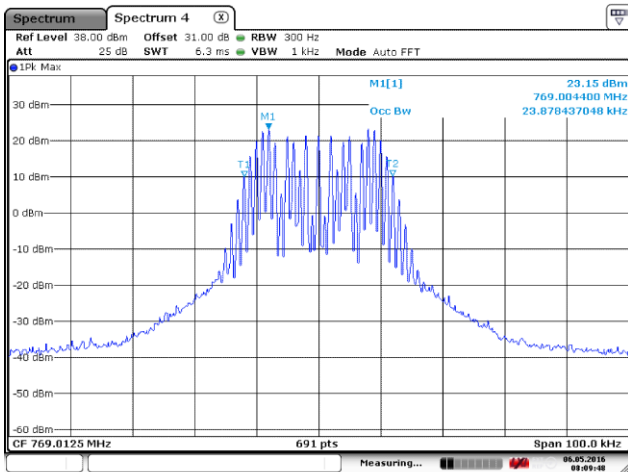
(1) Downlink



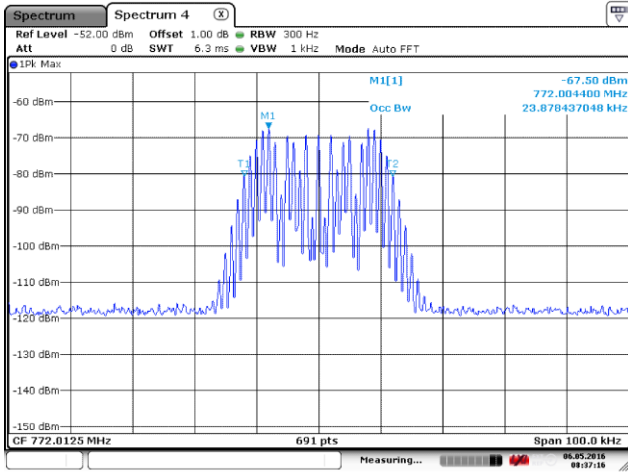
Low Frequency: 769.0125MHz, Input occupied BW



Low Frequency: 769.0125MHz, Output occupied BW(ALC)

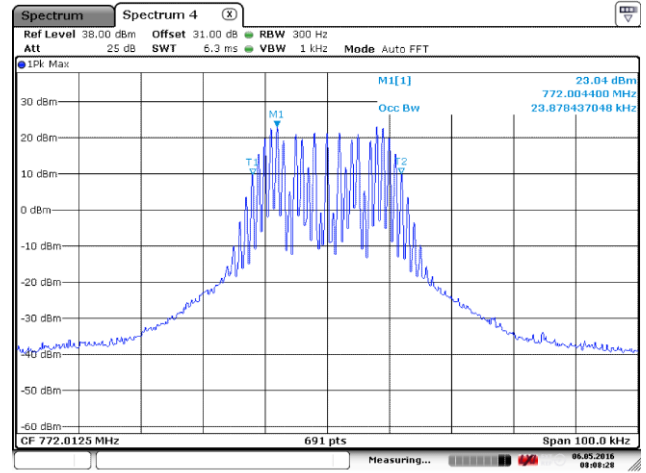


Low Frequency: 769.0125MHz, Output occupied BW (with the input signal amplitude set 3 dB above the ALC threshold)



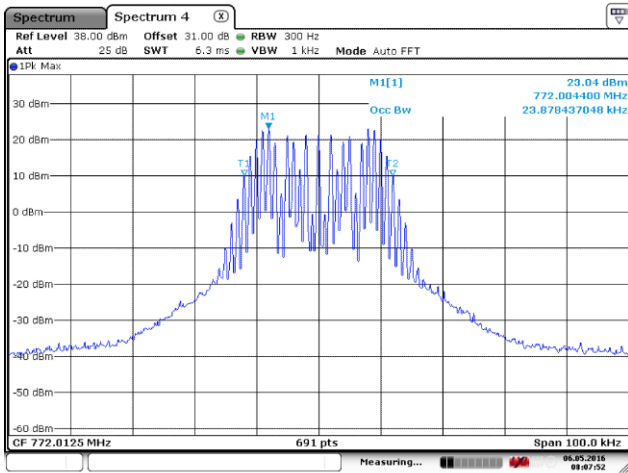
Date: 6.MAY.2016 08:37:16

Mid Frequency: 772.0125MHz, Input occupied BW



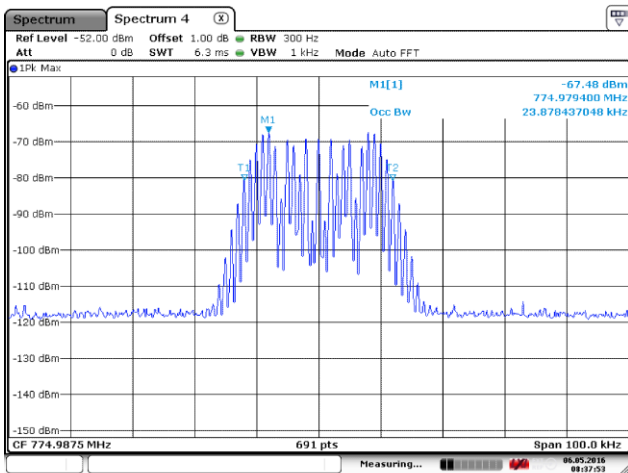
Date: 6.MAY.2016 08:08:27

Mid Frequency: 772.0125MHz, Output occupied BW(ALC)



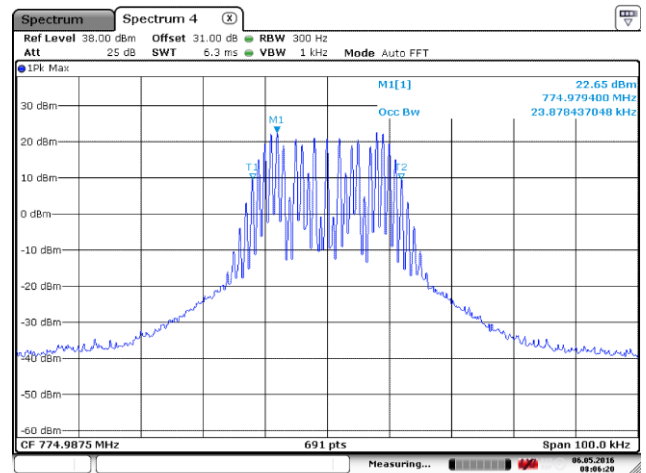
Date: 6.MAY.2016 08:07:52

Mid Frequency: 772.0125MHz, Output occupied BW (with the input signal amplitude set 3 dB above the ALC threshold)



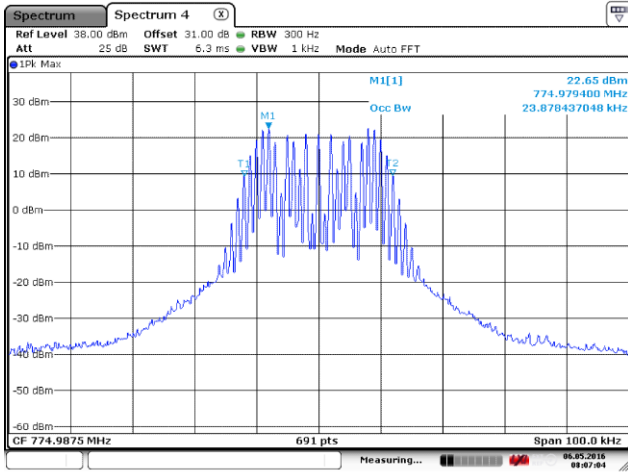
Date: 6.MAY.2016 08:37:53

High Frequency: 774.9875MHz, Input occupied BW



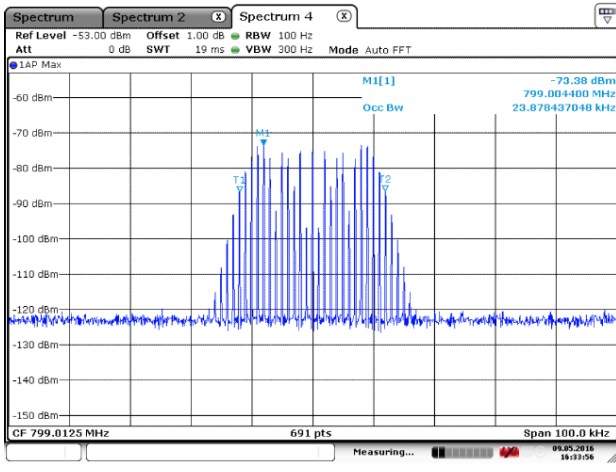
Date: 6.MAY.2016 08:06:20

High Frequency: 774.9875MHz, Output occupied BW(ALC)

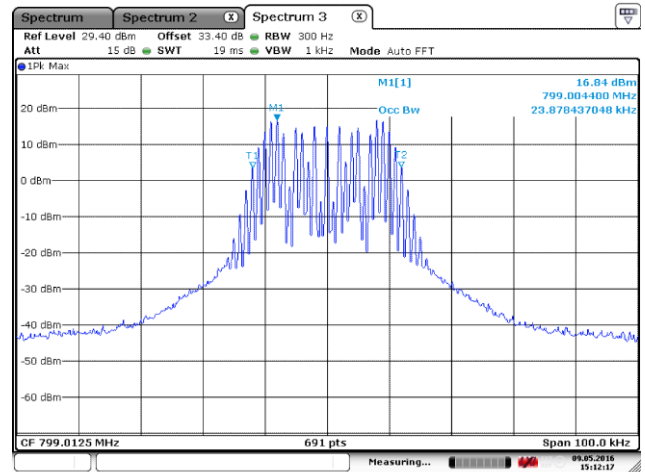


High Frequency: 774.9875MHz, Output occupied BW (with the input signal amplitude set 3 dB above the ALC threshold)

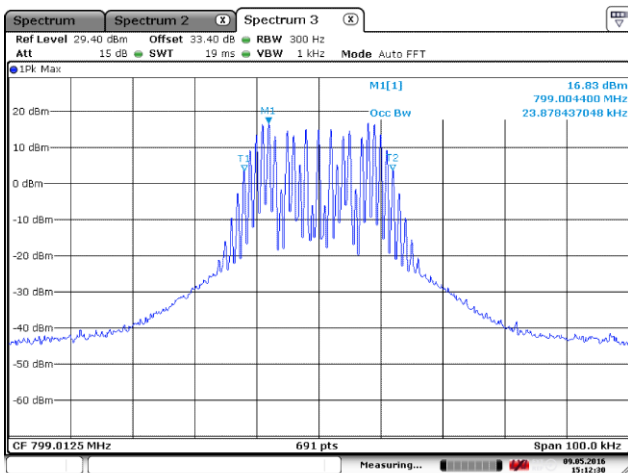
(2) Uplink



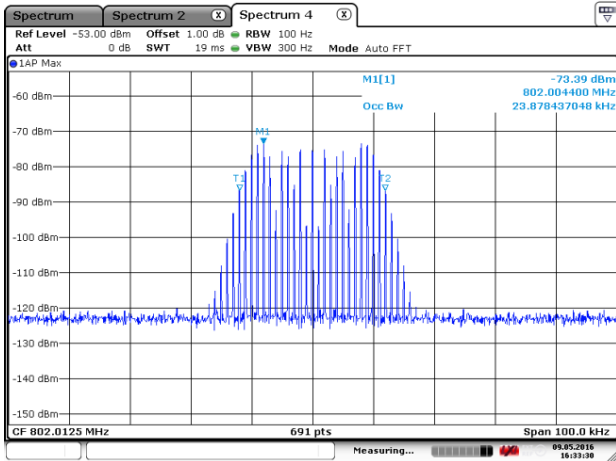
Low Frequency: 799.0125MHz, Input occupied BW



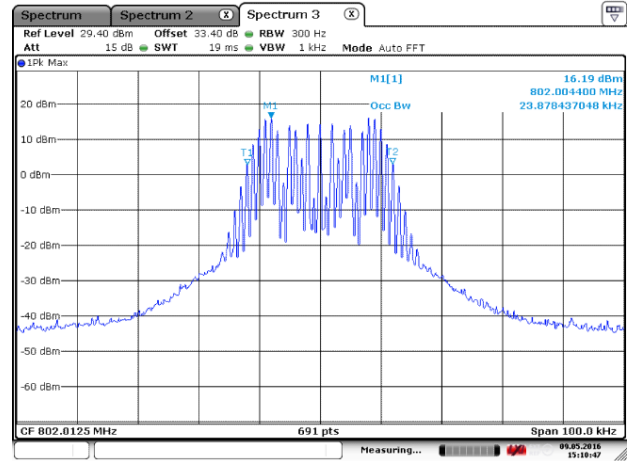
Low Frequency: 799.0125MHz, Output occupied BW(ALC)



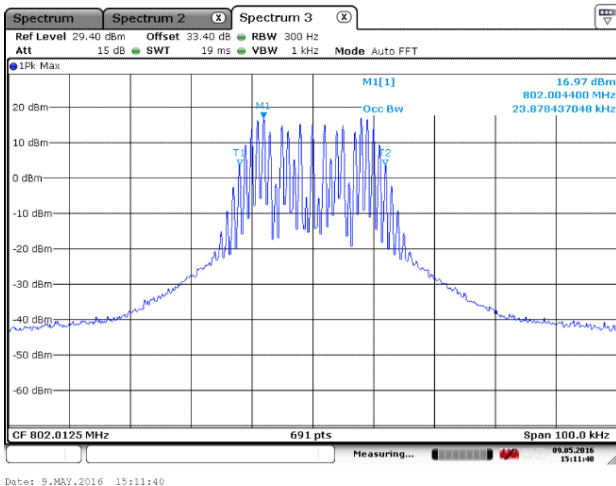
Low Frequency: 799.0125MHz, Input occupied BW (with the input signal amplitude set 3 dB above the ALC threshold)



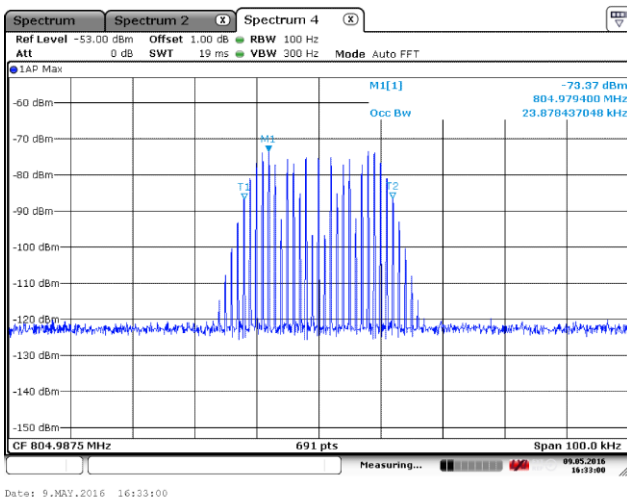
Mid Frequency: 802.0125MHz, Input occupied BW



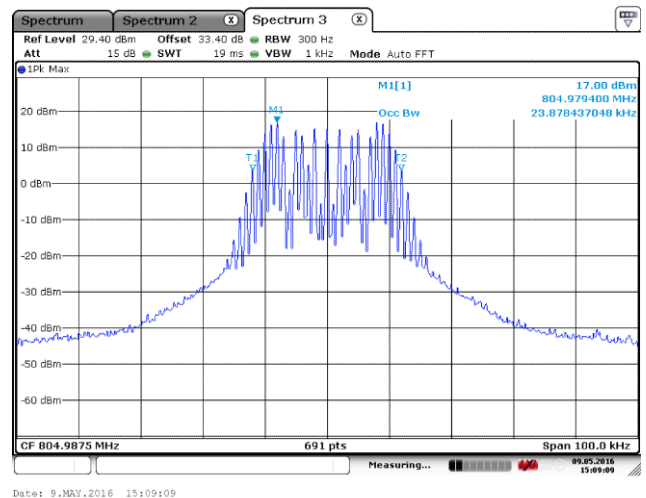
Mid Frequency: 802.0125MHz, Output occupied BW(ALC)



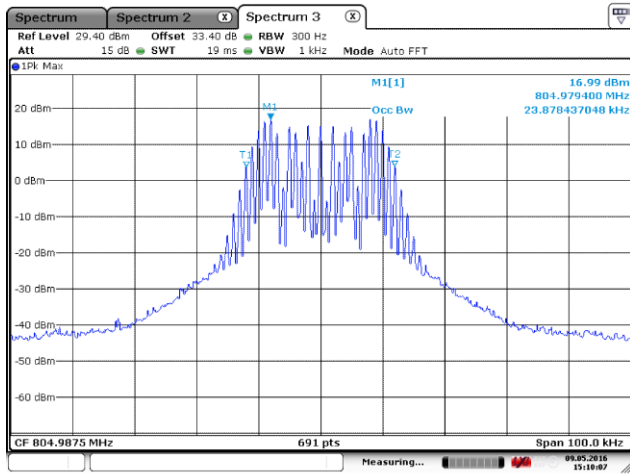
Mid Frequency: 802.0125MHz, Input occupied BW(with the input signal amplitude set 3 dB above the ALC threshold)



High Frequency: 804.9875MHz, Input occupied BW



High Frequency: 804.9875MHz, Output occupied BW(ALC)



High Frequency: 804.9875MHz, Input occupied BW(with the input signal amplitude set 3 dB above the ALC threshold)